

NORTHWEST IMPROVEMENT PROJECT

Proposed 11,340 Du's

Prepared for:
City of San Jacinto
Department of Community Development
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San Jacinto, CA 92383

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I. EXECUTIVE SUMMARY

The Northwest Improvement Project evolved from a number of independent projects to a comprehensive planning document amending various elements of the General Plan. In 1990, the City had re-evaluated its Flood Control Master Drainage Plan for the purpose of raising its mitigation fee and to begin a feasibility study for the establishment of an Assessment District to fund construction of a levee along the River and Master Plan Storm Drain Improvements.

There was interest, from a number of property owners in the Northwest area, in creating an assessment district for sewer and water facilities and determining service boundaries.

Lastly, the Northwest area was receiving development pressure to transition from a largely rural area; to urban. The City had processed and approved a number of tentative tract maps. Staff expressed concern to the Planning Commission and City Council that the City may be falling into the trap that other urbanizing jurisdictions had fallen into. Specifically, allowing growth without planning and developing adequate infrastructure and facilities.

In a portion of the Northwest area, the City Council adopted a temporary open space designation, due to the number of constraints affecting planning. These included, seismic faults, flood zones, inadequate circulation planning, lack of utilities, the existence of the San Jacinto Reservoir in the middle of the planning area.

A. TASK ASSIGNMENTS

NBS/LOWRY was hired by the City of San Jacinto to assist Staff with the Northwest Improvement Projects, to provide a Feasibility Study to re-evaluate and update the Water, Sewer and Storm Drainage Master Plans; and to help evaluate all viable financing methods for these plans. The specific tasks involved were:

Review the existing General Plan for the project area to include proposed projects and property owners interests in determining ultimate densities and land uses. Insure that facilities will adequately serve all existing and proposed development, and delineate these on a map;

Review and update the Water, Sewer and Storm Drainage Master Plans based upon the above determined proposed project area development densities, existing City needs and ongoing Annexation proposals;

The current improvement project involves the construction of a new water supply system for the City of Los Angeles. The project is being undertaken in response to a long-standing need for improved water service in the city. The project will involve the construction of a new water supply system, including the construction of a new water supply line, the construction of a new water supply station, and the construction of a new water supply reservoir. The project is being undertaken in response to a long-standing need for improved water service in the city.

There are several factors that are contributing to the need for this project. First, the existing water supply system is outdated and inefficient. Second, the existing water supply system is unable to meet the growing demand for water in the city. Third, the existing water supply system is unable to provide the quality of water that is required for the city's needs.

As a result of these factors, the City of Los Angeles is facing a serious water supply problem. The City is unable to provide the water that is required for the city's needs, and the existing water supply system is unable to meet the growing demand for water in the city. The City is therefore undertaking this project in order to provide the water that is required for the city's needs and to meet the growing demand for water in the city.

The project is being undertaken in response to a long-standing need for improved water service in the city. The project will involve the construction of a new water supply system, including the construction of a new water supply line, the construction of a new water supply station, and the construction of a new water supply reservoir. The project is being undertaken in response to a long-standing need for improved water service in the city.

2. PROJECT DESCRIPTION

The project is being undertaken in response to a long-standing need for improved water service in the city. The project will involve the construction of a new water supply system, including the construction of a new water supply line, the construction of a new water supply station, and the construction of a new water supply reservoir. The project is being undertaken in response to a long-standing need for improved water service in the city.

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Prepare preliminary water, sewer and storm drain facility designs (layouts) in sufficient detail to develop reasonable updated construction cost estimates;

Provide a review of the alternative financing methods available, their impacts and potentials for successful implementation, and recommend a program to finance the facilities; and

Prepare a preliminary circulation plan for the area to insure that all traffic generated and all through traffic can be adequately handled..

A committee of property owners, developers, and engineers was created to work with staff and NBS/Lowry. This committee provided input and guidance on a monthly basis while the planning process was ongoing.

Sewer and water plans were prepared in accordance with the guidelines given by EMWD.

Flood Control facilities were evaluated and sized based on the original Master Drainage Plan prepared by Riverside County flood Control.

Upon the completion of the draft land use, circulation, and drainage plan, a public meeting was called and all residents within the Northwest Area were mailed an invitation to review and comment on the plan.

A number of public hearings were held before the Planning Commission and on June 12, 1991, the Commission recommended the approval of the Northwest Area Improvement Plan.

B. CONCLUSIONS

LAND USE

The Northwest Area consists of approximately 3337 acres of mixed use development. Prior to the development of this plan 12 residential tract maps totalling 2976 lots were submitted for consideration and/or approval. Additionally, one nonresidential tentative map creating 21 commercial lots and 66 industrial lots was previously approved. The land use plan not only identifies the traditional residential and non residential uses but also, projects location and sizes of the parks and schools needed for the area, based on projected population and current student generation figures.

Eight sub-planning areas were created within the Northwest Area. The basis for the boundaries of the sub-planning areas was driven

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by the philosophy that children should not be required to cross major streets to play in a park. Therefore, the sub-planning area boundaries are the major streets. The committee felt this was a logical planning basis that could be used throughout the City in determining park needs as well as projecting school needs.

Contained within the report are recommended land use percentages developed by the American Planning Association and published by the Urban Land Institute. The land uses proposed within the Northwest Area mirror these recommendations fairly closely.

In developing projected population estimates, the figure of 2.8 persons per household was used. A recently published report indicates that on the average 3.2 persons per household are occupying new housing in Riverside County. The lower figure used is a reflection of the fact the valley's average age tends to be higher than most of the remainder of Riverside County. The Department of Finance has estimated the average occupied home in San Jacinto to have 2.67 residents.

Although parks and schools are specifically sited on the land use plan and the sitings were generally for a specific reason, the intention of the committee was not to specifically place a park or a school on a particular piece of land but rather, to show conceptually, the acreage, and the general location, for these facilities.

Should a development proposal underlying these public facilities be submitted to the City, a decision would have to be made as to whether the City or school district was interested in acquiring the land for their respective uses. If not, the development application must be processed. Staff recommends the Council, where possible, take a pro-active position in acquiring park sites at the earliest time.

CIRCULATION

The Circulation Element adopted in 1987 did not adequately plan a roadway system for the Northwest Area, largely due to the lack of interest in urbanization of those properties west of Lyon Avenue. As development pressure occurred, Staff realized the importance of creating the proper circulation plan for the area.

Major traffic volumes are already passing along and through the Northwest Area without the area's development. Sanderson Avenue north of the Expressway, has an average daily traffic volume of 18,414 and Ramona Expressway, east of Sanderson Avenue, 12,738. Additional factors considered in developing the Circulation Element include the existence of the San Jacinto Reservoir and the fact the existing intersection of Ramona Blvd. with Sanderson Avenue is too close to the intersection of Sanderson and the Expressway.

by the following: first children should not be required to cross
major streets to play in a park. Therefore, the playground area
should be located near the major streets. The committee felt this was a
logical planning basis and would be used throughout the city in
determining park needs as well as projecting school needs.

Therefore within the report are recommended land use percentages
developed by the American Planning Association and published by the
Urban Land Institute. The land uses proposed within the Northwest
area of the town recommendations is fully detailed.

In developing projected population estimates, the figure of 2.5
persons per household was used. A recently published report
indicates that the average 1.1 persons per household are
projected for housing in the future. The lower figure was
used in a projection of the town's future population. The
higher figure was used in the remainder of the study. The
assumption of the town has been that the average household size is
2.5 persons.

Although both the school and recreation are specifically stated in the land use
plan and the study were generally for a specific purpose. The
intention of the committee was not to specifically place a park or
a school on a particular piece of land but rather, to show
approximately, the average, and the general location, for these
facilities.

Should a development proposal involving these public facilities be
submitted to the city, a decision would have to be made as to
whether the city or school district was responsible in determining the
land for their respective uses. If not, the development and/or
use would be processed. Still, however, the Council, when
possible, take a proactive position in acquiring both sites at the
earliest time.

RECOMMENDATIONS

The Circulation Element adopted in 1985 did not adequately plan a
roadway system for the Northwest Area, formerly was to the land in
interest in development of these properties (see at 1985 Avenue
as development projects occurred. It is noted, the importance of
creating the proper circulation plan for the area.

Major roads within the study passing along and through the
Northwest area without the area's development. Johnston Avenue
is the primary road, and an average daily traffic volume of
10,000 and 15,000 vehicles, west of Johnston Avenue, is 10,000.
Additional roads proposed in developing the Circulation Element
include the extension of the land to the east and the fact the
existing intersection of 1985 Avenue with Johnston Avenue is too
close to the intersection of Johnston and the Highway.

The Circulation Element contains not only the street dedication but, also bike paths and scenic highway designations. The bike paths are also integrated with the Flood Control Drainage Plan (discussed later). The committee, in consultation with the City's Traffic Engineer, generally took a conservative approach when designating right-of-way width. In other words, the plan reserves the larger of two right-of-ways if doubt existed as to the proper width of a street. In brief, Sanderson and the Ramona Expressway are designated as Urban Arterial streets, as are portions of Lyon Avenue and Ramona Blvd., as they approach the Expressway and Sanderson respectively. Cottonwood and the southerly section of Lyon are designated major highways. De Anza Drive, Ramona Blvd, Record Road, Palm Avenue, the northerly stretch of Lyon Avenue and the northerly portion of Potter Road are secondary highways. The remainder of the streets on the Circulation Plan are collector streets with two notable exceptions.

There was a question as to whether Jeffrey Avenue and Potter Road, southerly of Ramona Blvd., should be Secondary Highways. Therefore, a new designation was developed called a "Modified Secondary Highway". This designation allows the construction of four full lanes of traffic within the collector right-of-way of 66 ft. Driveway access would be permitted which is different than secondary highway standards. It should be noted that lots fronting on modified secondary streets should have an additional five ft. front yard setback. The bikeway system acts not only to provide a route for serious and recreational bikers alike, but also serves as a conduit to connect the park system together. In most cases, the bikeway system would be developed to Class I standards, which creates a bikeway separate from the driving area. Where these opportunities don't exist, and it is not practical to create a joint sidewalk/bikeway, the system would convert to a Class II bikeway which is striped on the street. This condition should infrequently occur in the Northwest Area.

DRAINAGE AND FLOOD CONTROL

The northerly one-third on the Northwest Improvement Project is in the designated "A" flood zone. Historically two master plans have been developed to address flood control and drainage in the area.

In the late sixties, Riverside County Flood Control commissioned a study of the San Jacinto River and a plan was adopted, calling for the construction of a levee on the south side of the river from a point near State Street to a point approximately 4,000 ft. west of Sanderson Avenue. This levee is incorporated into the Northwest Plan. According to NBS/Lowry, most or all of the Northwest Area will be removed from the flood zone, once this levee is built. As no outside funding assistance is anticipated at this time, the City proposes to create an assessment district to facilitate levee construction.

It is important to point out, there are currently plans to build bridges across the San Jacinto River at State Street and Sanderson Avenue. Neither of these bridges are planned to be constructed to the ultimate length that will be required upon the construction of the levee. Therefore, funding will also have to be provided for lengthening both bridges.

The second historic master plan is the San Jacinto Area Master Drainage Plan which calls for a series of underground storm drains and open concrete lined channels which drain northerly to the River. The drainage and flood control plans for the Northwest Area call for the elimination of the concrete and pipe structures, but rather includes a design that is available for multiple uses and is aesthetically pleasing. As discussed in the Northwest Plan, these grass-lined channels are less expensive to build than concrete-lined channels, and can also be used for bikeways, sidewalks, jogging trails and as a connector between parks. The financial vehicle proposed to maintain these channels is a Lighting and Landscape Maintenance District.

WATER AND SEWER

The water and the trunk sewer system will be provided by Eastern Municipal Water District. The collector sewer system will be owned and operated by the City of San Jacinto. The Northwest Area Plan outlines the proposed EMWD facilities which may be funded by an assessment district. While the sewer plan is largely restricted to the Northwest Area, the water plan actually incorporates the northerly portion of Annexation 66, as well as the area further to the northwest.

The key facility in developing the sewer plan is the construction of a major lift station in the vicinity of Ramona Expressway and Sanderson Avenue. This lift station will not only allow for the development of a gravity sewer system for the Northwest Area, but will also be the key in developing a gravity sewer system for the City's in the Northeast Area.

The plans included in the Northwest Plan have been reviewed by EMWD, which was also consulted during the plan preparation stage. Although, the actual construction may vary somewhat from the design included in this plan, the overall concept will remain the same.

GENERAL PLAN

The Northwest Plan is a formal amendment to the General Plan. The Circulation Element and Land Use supersede all existing designations within the General Plan. The adoption of this plan also mandates that the text of the Hazards Management Element, the Circulation Element, and the Land Use Element be modified.

II. GENERAL PLAN

A. Land-Use Element

The Feasibility Study will examine the existing land-uses, current General Plan Land-Use Element and will provide recommendations for amendments to the Land-Use Element of the General Plan.

The Feasibility Study examined the following issues as they relate to the future land-use designations in the study area:

- 1) Existing land-uses and zoning
- 2) Proposed development projects
- 3) General Plan Land-Use designations
- 4) Environmental and developmental constraints
- 5) Proposed circulation system
- 6) Provision of balanced community

The existing land-uses in the study area consist of agricultural, vacant, residential, and commercial. The agricultural uses consist primarily of dairy farms, calf nursery, and field crops. The residential uses consist of single family tracts currently under construction, existing single family tracts, and scattered low density residential units. The existing commercial uses consist of the Open Air Market/Auction, and scattered commercial uses along the Ramona Expressway.

The existing zoning in the area consists of primarily A - Agriculture, R-A - Residential-Agriculture, R-1 - Single Family, R-2 - Two Family, C-1 - Neighborhood Commercial, C-2 - Community Commercial, M-1 - Light Industrial, and W-2 - Controlled Development Area.

There are currently 12 residential tract maps creating 2,976 lots under consideration in the study area. Several of the tracts are recorded and the homes are under construction while the remaining tracts are either tentatively approved or currently being considered by the City. There is one industrial/commercial tract map creating 21 commercial lots and 66 industrial lots. This map is approved and is under design.

The existing General Plan Land-Use Element designates the majority of the study area as Low Density Residential and Rural Residential/Agriculture. The remainder of the study area is designated as Medium Density and High Density Residential and Community Commercial, these designations represent approximately 1/4 of the study area.

The project area has several identified environmental constraints which will effect the development potential of the area. These constraints include:

- seismic zones as identified by the Alquist-Priolo Special Study Zone
- flooding and need for major flood control improvements

The project area has several other constraints associated with the development of the study area including:

- existing Metropolitan Water District Aqueduct pipelines
- San Jacinto Reservoir
- existing diagonal streets

The existing Circulation Element is proposed to be amended with the implementation of the Northwest Improvement Project. The existing street network and land-uses were examined and major changes are proposed. The area is characterized as an area lacking in north-south circulation and poorly designed, possibly dangerous, intersections due to the diagonal streets.

The changes to the Circulation Element include the realignment of Lyon Avenue, Potter Road, De Anza Drive, Ramona Boulevard, and the addition of Jeffrey Avenue, Potter Road west of the San Jacinto Reservoir from Jeffrey Avenue to realigned Lyon Avenue north of the Ramona Expressway. The Circulation Element also provides bikeways adjacent to streets, existing aqueducts and incorporated into the design of the flood control channel improvements. The bikeways are designed to link Mt. San Jacinto College, Valley Wide Regional Park, proposed parks and schools to existing and proposed residential areas.

The proposed land-use plan is intended to provide for the development of a balanced community by allowing for a variety of residential densities ranging from detached single family to attached multi-family. The plan also provides for commercial and industrial uses, schools, parks, and other public facilities. The land-use plan, while providing for a variety of land-uses, also recognizes existing land-uses and previously approved development plans.

The land-use plan allows for the development of the following types, acreage, and percentages of land-uses:

Low Density Residential	1574 acres	47%
Medium Density Residential	270 acres	8%
High Density Residential	82 acres	2%
Industrial	383 acres	11%
Commercial	267 acres	8%
Public Facilities	222 acres	6%
San Jacinto River Dike	166 acres	5%
Schools	150 acres	4%
Parks	<u>233 acres</u>	<u>7%</u>
3337 acres		- 100%

Studies have been made nationwide to provide information on which to base recommendations for types and percentages of land-uses to insure that the community will be balanced and provide for needed public facilities. The studies have been conducted by the American Planning Association and published by the Urban Land Institute. The recommended land-use percentages are as follows:

Residential	46-50%
Commercial	7-9%
Industrial	12%
Public Use	31% (includes streets, parks, schools, etc.)

The proposed land-use plan is basically consistent with the recommendations of the land-use studies, although the residential percentage is higher than recommended. The public facility percentage is lower than recommended but this plan does not include streets within the public facility category. Streets are included in adjacent land-uses.

The proposed park sites have been located based upon the following criteria:

- close proximity to residential units;
- adjacent to proposed bikeways or existing aqueducts;
- adjacent to or in close proximity to proposed schools;
- accessibility; and
- utilization of fault hazard zones

The study area was divided into 8 Planning Areas which are generally defined by major roadways. Each Planning Area was reviewed to estimate population generated park acreage required. The population generation figures were based upon 2.8 persons per residential unit. Park acreage requirements were based upon the City of San Jacinto standard of 5 acres of park per 1,000 persons (see Figure 1).

As indicated in Figure 2, the following park acreage requirements were calculated for each Planning Area.

<u>Planning Area</u>	<u>Acres Required</u>	<u>Acres Provided</u>
I	40	65
II	19	21
III	16	10
IV	39	71
V	13	10
VI	11	18
VII	3	7
VIII	17	21

All of the Planning Areas must meet the requirements for park acreage. As property is developed each project will be reviewed to determine compliance with the park acreage requirements.

The school district needs have been evaluated as part of this study and proposed school sites have been indicated on the land-use map. The San Jacinto Unified School District provided student generation figures, school capacity, and acreage requirements (see Figure 3). Based upon the criteria furnished by the school district, it was determined for Traditional School schedule 8.5 elementary schools, 2.2 middle schools, and 1.2 high schools. For yearround schedule 7.1 elementary schools, 2 middle schools, and 1 high school will be required. This land-use plan provides for 8 elementary schools, 2 middle schools, and 1 high school. The school sites have been located based upon criteria outlined in the California State Department of Education publication, School Site Selection and Approval Guide (see Figure 4), and district input. The district expressed the following concerns for site selection:

- proximity to existing schools
- proximity to proposed or existing residential units
- proximity to major roadways
- proximity to known geologic hazards or pipelines

School sites indicated on General Plan Land Use Maps are not intended to be specific locations and can be relocated within the subplanning areas as dictated by development.

The Northwest Improvement Project Land-Use Plan has been coordinated with the planning effort currently underway on Annexation No. 66.

B. Circulation Element

The Feasibility Study will evaluate the existing roadway system, current General Plan Circulation Element, and will provide recommendations for amendments to the Circulation Element of the General Plan.

The Feasibility Study examined the following issues as they relate to the future circulation needs of the study area:

- 1) Existing land-uses and zoning
- 2) Proposed development projects
- 3) General Plan land use designations
- 4) Environmental and developmental constraints

The existing land-uses in the study area are primarily agriculture, vacant, residential, and limited commercial. The existing zoning primarily reflects the existing land-uses or approved development projects which are currently under construction or in final engineering.

There are currently 12 residential tract maps creating 2,976 lots under consideration in the study area. Several of the tracts are recorded and the homes are under construction while the remaining tracts are either tentatively approved or currently being considered by the City. There is one industrial/commercial tract map creating 21 commercial lots and 66 industrial lots. This map is approved and is under design.

These tract maps propose to extend, realign or create new streets within the study area. These roadways have been analyzed as part of the Feasibility Study to insure the efficient movement of traffic while protecting existing and proposed residential neighborhoods, provide safe intersections, and provide opportunities for bike lanes.

The existing General Plan Land-Use Element designates the majority of the study area as Low Density Residential and Rural Residential/Agriculture. The remainder of the study area is designated as Medium Density and High Density Residential and Community Commercial, these designations represent approximately 1/4 of the study area.

The existing Circulation Element of the General Plan indicates Sanderson Avenue and State Street as the major north-south streets; Cottonwood Avenue as the major East-West Street, and Ramona Expressway, Ramona Boulevard and River Road as major northwest to southeast streets. The project area is lacking in East-West and other North-South street connections.

The project area has several identified environmental constraints which will effect the development potential of the area. These primarily identified constraints include:

- seismic zones as identified by the Alquist-Priolo Special Study Zone
- flooding and need for major flood control improvements

The project area has several other constraints associated with the development of the study area including:

- existing Metropolitan Water District Aqueduct pipelines
- San Jacinto Reservoir
- existing diagonal streets

In determining future street locations, the following criteria was utilized for intersection spacing:

- Sanderson Avenue - Minimum 2,000 feet
- Ramona Expressway - 1/2 mile

Based upon the information examined as it relates to future circulation needs of the study area, the following amendments are proposed to the Circulation Element of the General Plan:

- Kirby Street - eliminate Kirby Street north of Jeffrey Avenue
- Jeffrey Avenue - extend Jeffrey Avenue east of Sanderson Avenue to De Anza Drive as modified 66' R-O-W, eliminate Scott Road
- Lyon Avenue/Potter Road - realign Lyon Avenue, extend north/northwesterly to Sanderson Avenue, rename Potter Road to Lyon Avenue. Lyon Avenue to be 134' R-O-W between De Anza Drive and Ramona Expressway
- De Anza Drive - realign De Anza Drive to intersect Lyon Avenue at a 90 degree intersection, upgrade designation to Secondary Highway 88' right-of-way
- Ramona Boulevard - realign Ramona Boulevard to intersect Sanderson Avenue at a 90 degree intersection halfway between Ramona Expressway and Sanderson Avenue/Warren Road realigned. Ramona Boulevard to be 134' R-O-W between Lyon Avenue and Sanderson Avenue

- Potter Road west of San Jacinto Reservoir - addition of collector street 66' right-of-way from Jeffrey Avenue north to Ramona Boulevard; addition of Secondary Highway 88' right-of-way from Ramona Boulevard Drive north to realigned Lyon Avenue
- Chase Street - addition of Chase Street as collector 66' right-of-way from De Anza Drive northeasterly to Ramona Expressway; addition of Chase Street as collector 66' right-of-way from Ramona Expressway northwesterly to realigned Lyon Avenue
- Young Road - redesignate Young Road to collector 66' right-of-way
- Provide for overpass at the intersection of Sanderson Avenue and Ramona Expressway
- Provide for right turn only to and from a point approximately halfway between Sanderson Avenue and Potter Road (realigned) onto Ramona Expressway.

Additionally, the Feasibility Study also provides for bikeways. The majority of the bikeways will be incorporated into the design of the flood control channel improvements, or adjacent to the existing aqueducts. The remaining bikeways will be adjacent to streets. The bikeways within the project area are designed to connect Mt. San Jacinto College, Valley Wide Regional Park and local parks where possible, to the proposed park/retention basin in Annexation No. 66.

The proposed Circulation Element has been reviewed by the City of San Jacinto Traffic Engineer. The following modifications have been incorporated into the circulation plan pursuant to the Traffic Engineer's comments (see Figure 5):

- Palm Avenue/Young Street has been designated as Secondary Highway 88' right-of-way from Cottonwood Avenue to Ramona Boulevard. Palm Avenue/Young Street will remain 66' right-of-way from Ramona Boulevard to Ramona Expressway, due to existing development constraints.
- Chase Street will remain Collector 66' right-of-way, due to existing development constraints. A modified section will be required at intersections to accommodate a left turn pockets and/or right turn lane.
- Jeffrey Avenue will remain a 66' right-of-way due to existing tract approvals setting right-of-way widths. Therefore, a modified section will be required. This section will provide 52' of paving in the 66' right-of-way (see Street Sections).

- Lyon Avenue - The 300' radius is on Lyon Court and is acceptable for a local collector (Lyon Court has been eliminated pursuant to Planning Commission direction).
- Lyon Avenue - The radius south of De Anza Drive is to remain 1200', due to the constraints of the San Jacinto Reservoir. The radius north of Jeffrey Avenue has been increased to 1600' (Lyon Avenue has been realigned pursuant to Planning Commission direction).

III. STUDIES

A number of publicly supplied services are required to adequately serve the planned Land Uses. Flood control, water and wastewater require early Facilities Master Planning.

A. DRAINAGE AND FLOOD CONTROL

The Riverside County Flood Control and Water Conservation District Master Plan shows that a large portion of this area has been considered as permanent flood plain. For this reason, the Master Plan included no drainage facilities for the flood plain and included some master planned facilities that would require relocation of existing MWD Aqueducts.

Potential urbanization of this area requires a more thorough evaluation of the drainage facilities necessary to protect the area from flooding. Hydrology data have been refined and updated to insure that all existing, planned, or proposed channels would be adequate to contain estimated flood flows in this area.

Based upon this detailed hydrologic study, proposed flood control facilities were sized and aligned to control these flows in an acceptable manner. All facilities were designed to keep the 100-year flood water surface at least 1-foot below the adjacent ground. Because this event has only 1 chance of occurrence in 100 years, this is generally accepted as an adequate level of protection.

Planned new flood control facilities now include 127,000 feet of open channels, 23,000 feet of relocated River Dike, 4 major box culvert road crossings, and 1 bridge road crossing (see Drainage Master Plan).

In order to determine the best overall facility design (cost, aesthetics, multiple uses), various channel types were evaluated. Options included concrete-lined channels, earth-lined channels and grass-lined channels. Concrete channels are the most expensive to construct, though once they are built they require the least maintenance. Earth-lined channels are the least expensive to construct, though they require the most land and have significant maintenance costs. Grass-lined channels require an intermediate amount of land and multiple benefits for both flood control and recreation purposes. They can also provide a financial vehicle for maintenance through the formation of a Landscape Maintenance District.

As a further benefit, most of these channels are proposed to be linear parks. These greenbelt channels will incorporate bike/walking paths (part of the circulation element) which will connect most major recreation and educational land uses with the various residential uses.

B. DOMESTIC WATER

Existing and required water distribution facilities were evaluated on order to provide adequate water for the Northwest Improvement Area and its planned future land uses.

There are few existing water lines in this area, and all of which are operating outside their service pressure zones of 40 to 90 psi. Agreements between the City of San Jacinto and Eastern Municipal Water District (EMWD) have indicated that this area should be served by EMWD. Other existing EMWD improvement districts are located around the college (U-20), south of Cottonwood (24), north of the San Jacinto river (5), and west of Warren Road (U-5). None of these improvement districts were designed to provide water service to the Northwest Improvement area.

A study was performed to facilitate the formation of a new Improvement District to include that portion of the area north and west of State and Cottonwood not previously included in any Improvement District. This new Improvement District, will, in addition to being an operational entity, be a funding tool which can be used by EMWD to sell General Obligation Bonds for facility construction. The new Improvement District should include the entire area from State and Cottonwood to Bridge Street not already in an existing Improvement District.

EMWD design criteria were used in a hydraulic network analysis program for this area:

- | | |
|-------------------|--------------------|
| • 200 GPD | Average Daily Flow |
| • 400 GPD | Peak Daily Flow |
| • 2.5 x ADF | Instantaneous Peak |
| • PDF & Fire Flow | Storage Required |

This program can simulate all conditions from full usage of a water system from minimal flows during off hours, through peak flows and fire flow situations. Based on the District average of 12 people per acre and a peak flow of 400 gallons per day per person, a proposed backbone water supply system was selected using roadway alignments either available now or master planned for the future. Additional sources of water and storage facilities will be required. Nearby areas with demonstrated ability to produce additional water from existing wells were selected to provide this added capacity. Existing and proposed facilities are shown on EMWD Water Master Plan map.

Based on pipe size and storage requirements, projected construction costs have been estimated in order to determine the total bonding

capacity needed to adequately serve this area in the future. These costs are shown in Appendix B.

In conclusion, it is physically and financially feasible to provide adequate water to this area's projected future residents by using some imported water to augment existing local supplies.

C. WASTEWATER

This section describes the sewage collection, transmission and treatment facilities which will be needed to adequately serve future residents and businesses in the Northwest Improvement Area.

Existing agreements between the City of San Jacinto and Eastern Municipal Water District (EMWD) call for City-sponsored sewage collection systems and EMWD-sponsored transmissions systems and wastewater treatment facilities.

Wastewater transmission and treatment facilities proposed for the Northwest Improvement Area have been designed using accepted EMWD design criteria for sewage generation, pipe sizing and slope. The basic design criteria for sewage generation is 100 gallons per day per person. The EMWD transmission system is designed to insure that the maximum off-site local collector need for any parcel in the Northwest Improvement area in less than one-half mile.

The Northwest Improvement Project is located immediately east and north of the existing EMWD wastewater treatment plant west of Sanderson and north of Cottonwood. Land in this area slopes naturally toward the northwest. The practical effect of these two conditions is that some wastewater flows from as far away as the eastern portions of San Jacinto and Valle Vista will be carried by gravity flow through the Northwest Improvement Area to the vicinity of Sanderson Avenue and the Ramona Expressway. A proposed major lift station will then pump collected flows via a force main along Sanderson to the treatment plant, which is located about 2 miles south of the Ramona Expressway. Because of this the financial program to fund these facilities requires significant EMWD contributions, see Appendix C.

Three existing MWD aqueducts, all of large diameter and relatively great depth, provide another significant design constraint for future gravity sewers in the Northwest Improvement Project area. Extra depth will be required on these sewage transmission mains in order to pass under these aqueducts. The extra depth will insure that local sewage collection trunks within this area can easily be connected to the transmission system.

D. FINANCIAL CAPABILITIES

This section evaluates and describes the cost to the public to provide the necessary services for flood control, domestic water and waste water.

The total facilities and their costs are tabulated in Appendices A, B, and C. However, we must realize that because of the nature of these facilities, their costs must be distributed over an area that for both drainage and water supply is significantly larger than the Northwest Improvement Project. For the flood control facilities, the total cost of \$39 million (\$39,000,000) will be distributed among approximately 6,700 acres. This will provide a per acre cost that is equivalent to the existing City flood control mitigation fee of \$5,990 per acre. This would therefore indicate that the flood control facilities proposed with the Northwest Improvement Project are already within the financial capabilities or at least expense expectations of development in the San Jacinto area. We must also realize that some of these major facilities will be required at one time and in one project. This will therefore require significant group participation at one time. Such participation could involve an assessment district of one type or another to prepay such fees so that facilities will be installed to allow development in these areas.

The total cost for water facilities of \$35 million (\$35,000,000) are designed to provide water service for transmission and storage and supply of water service for an area of approximately 10,000 acres. Thus, making the cost per acre approximately \$3,500 or at an overall density of $3\frac{1}{2}$ units per acre, about \$1,000 per unit, which is less than the existing water connection fees for Eastern Municipal Water District.

The attached Appendix C indicates that approximately \$4.2 million will be required to install sewer transmission facilities to serve the Northwest Improvement area. Some of these facilities are designed to serve outside the Northwest Improvement area by providing capacity for passthrough flows. These flows have been allocated in such a manner that their cost to EMWD should be approximately \$1.4 million. This leaves a local share of \$2.8 million. Since the area to be served by this expansion of the sewage transmission system is approximately 1,600 acres, this leaves a cost to install this system of about \$1,750 per acre. Again, well under those fees required for Eastern Municipal Water District.

The fact that the flood control program fits within the existing City fee structure and the water and sewer improvements can be installed for the amount of, or even less than, Eastern Municipal Water District's existing fee structure appears to make the costs of facilities in the Northwest Improvement area well within those that would be expected anywhere in San Jacinto.

IV.

FIGURES

FIGURE 1 - PARK ACREAGE

A. Residential Densities

5 acre parks per 1,000 persons

Low Density residential:

4 dwelling units per acre

Medium density residential:

12 dwelling units per acre

High density residential:

22 dwelling units per acre

B. Dwelling Unit Generation

Low density residential:

4 du/ac x 1574 ac = 6,296 du

Medium density residential:

12 du/ac x 270 ac = 3,240 du

High density Residential:

22 du/ac x 82 ac = 1,804 du

11,340 du

C. Population Generation & Acreage Requirements

Proposed dwelling units

= 11,340

Populations per dwelling unit

= 2.8

Proposed population

= 31,752

Park acreage per 1000 population

= 5.0 acres

Required park acreage

= 158 acres

D. Proposed Park Acreage

223 acres in 7 parks

FIGURE 2 - PLANNING AREA STATISTICS

The following housing, populations and park statistics are based on the following criteria:

Average population/dwelling unit: 2.8
Park acreage/1000 population: 5.0

	<u>LAND USE DESIGNATION</u>	<u>DENSITY</u>	<u>ACRES</u>	<u>D.U.</u>	<u>POPULATION</u>	<u>PARKS</u>
PLNG AREA I:	Low Dens. Res.	4 du/ac	26	1040		
	Med. Dens. Res.	12 du/ac	103	1236		
	High Dens. Res.	22 du/ac	26	<u>572</u>		
	Totals			2848	7,974	40 ac
PLNG AREA II:	Low Dens. Res.	4 du/ac	237	948		
	Med. Dens. Res.	12 du/ac	16	192		
	High Dens. Res.	22 du/ac	10	<u>220</u>		
	Totals			1360	3,808	19 ac
PLNG AREA III:	Low Dens. Res.	4 du/ac	293	1172		
	Totals			<u>1172</u>	3,282	16 ac
PLNG AREA IV:	Low Dens. Res.	4 du/ac	614	2456		
	Med. Dens. Res.	12 du/ac	160	<u>192</u>		
	Totals			2288	6,406	32 ac
PLNG AREA V:	Low Dens. Res.	4 du/ac	115	460		
	Med. Dens. Res.	12 du/ac	26	312		
	High Dens. Res.	22 du/ac	8	<u>176</u>		
	Totals			948	2,654	13 ac
PLNG AREA VI:	Low Dens. Res.	4 du/ac	55	220		
	Med. Dens. Res.	12 du/ac	50	<u>600</u>		
	Totals			820	2,296	11 ac
PLNG AREA VII:	High Dens. Res.	22 du/ac	10	<u>220</u>		
	Totals			220	616	3 ac
PLNG AREA VIII:	Med. Dens. Res.	12 du/ac	59	708		
	High Dens. Res.	22 du/ac	22	<u>484</u>		
	Totals			1192	3,338	17 ac

FIGURE 3 - SCHOOL FACILITIES

Design Criteria

A. Student Generation Factors

Grades K-5	.50 students/du
Grades 6-8	.21 students/du
Grades 9-12	.22 students/du

B. Students Generated

Grades K-5	11,340 units/du x .50 students/du = 5,670 students
Grades 6-8	11,340 units/du x .21 students/du = 2,381 students
Grades 9-12	11,340 units/du x .22 students/du = 2,495 students

C. School Capacity Limits

	<u>Traditional</u>	<u>Year Round</u>
K-5 Elementary School	= 666 students	800 students
6-8 Middle School	= 1,000 students	1,200 students
9-12 High School	= 2,100 students	2,520 students

D. Recommended School Site Requirements (Net Usable Acres)

K-5 Elementary School	= 10 acres/school	10 acres/school
6-8 Middle School	= 20 acres/school	20 acres/school
9-12 High School	= 45 acres/school	45 acres/school

School Sites Required

K-5 Elementary School:	<u>5,670 students</u> 666 students/school = 8.5 schools	<u>5,670 students</u> 800 students/school = 7.1 schools
6-8 Middle School:	<u>2,381 students</u> 1,000 students/school = 2.2 schools	<u>2,381 students</u> 1,200 students/school = 2.0 schools
9-12 High School:	<u>2,495 students</u> 2,100 students/school = 1.2 schools	<u>2,495 students</u> 2,520 students/school = 1.0 schools

School Acreage Required

K-5 Elementary School:	8.5 sch x 10 ac/sch = 85 acres	7.1 sch x 10 ac/sch = 71 acres
6-8 Middle School:	2.2 sch x 20 ac/sch = 44 acres	2.0 sch x 20 ac/sch = 40 acres
9-12 High School:	1.2 sch x 45 ac/sch = 54 acres	1.0 sch x 45 ac/sch = 45 acres
	Total acres = 183	Total acres = 156

School Acreage Proposed

K-5 Elementary School	= 96 acres
6-8 Middle School	= 50 acres
9-12 High School	= <u>24 acres</u>
	170 acres

FIGURE 4 - SCHOOL SITE SELECTION CRITERIA

The following criteria for school site selection are based upon a California State Department of Education 1989 publication School Site Selection and Approval Guide. The guide recommends 12 criteria to be used for site selection. Points are to be used in evaluating and ranking each site. The maximum points for each site evaluation criterion are:

1.	Safety	20 points
2.	Location	10 points
3.	Environment	10 points
4.	Soils	10 points
5.	Size and Shape	10 points
6.	Topography	10 points
7.	Accessibility	10 points
8.	Public services	3 points
9.	Utilities	3 points
10.	Cost	3 points
11.	Political implications	3 points
12.	Availability	<u>3 points</u>
		95 points

The safety criterion is considered the most important. In evaluating safety, the following issues need to be examined:

- a) proximity to airports; if the site is within 2 miles of an airport or heliport, then additional information must be submitted.
- b) proximity to high voltage power transmission lines.
- c) presence of potential toxic and hazardous substances.
- d) results of geological studies and soils analyses; schools cannot be constructed on the trace of a geological fault.
- e) traffic and school bus safety conditions.
- f) joint use safety.

FIGURE 5 - CIRCULATION SYSTEM REVIEW

The following review and comment memorandum is included here for reference.

"M E M O R A N D U M"

8911850

TO: Brian McNabb, Director of Community Development
City of San Jacinto

FROM: Ben Dobbins /s/
City Traffic Engineer

DATE: October 24, 1990

SUBJECT: Review - Circulation Element - Northwest Improvement Project

I have reviewed the land use and circulation element plans for the northwest improvement project. In general I found the street widths and roadway spacings satisfactory. Listed below are my comments.

Young Road - Shown as a collector (66') on the circulation plan, but labeled 88 feet south of De Anza Drive. Maybe Young Road - Palm Avenue from Ramona expressway to Cottonwood Avenue should be a secondary highway (88'). This would provide an additional four (4) lane north and south route within 1/2 mile of each other, thereby reducing the traffic load on State Street and Lyon Avenue.

Chase Street - Recommend that Chase Street between Ramona Expressway and De Anza Drive be upgraded to a secondary highway (88'). Foresee the need for an additional four (4) lane north and south route between Ramona Expressway and De Anza Drive.

Jeffrey Avenue - To provide for future circulation within this area. Some thought might be given to upgrading Jeffrey Avenue from a collector (66') to a secondary (88').

Lyon Avenue - 300 feet radius curve is shown on Lyon Avenue south of Lyon Court. Minimum for major classification is 1600 to 2,000 feet.

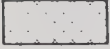
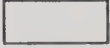
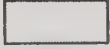
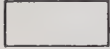
Lyon Avenue - 1,200 feet radius curve is shown on Lyon Avenue south of De Anza Drive. Minimum for major is 1,600 to 2,000 feet.

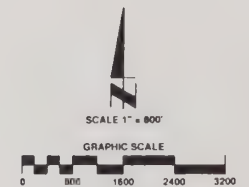
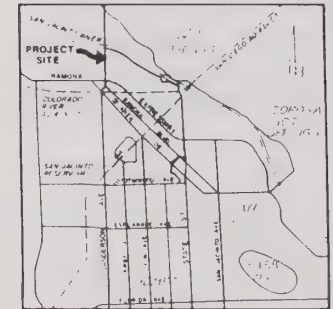
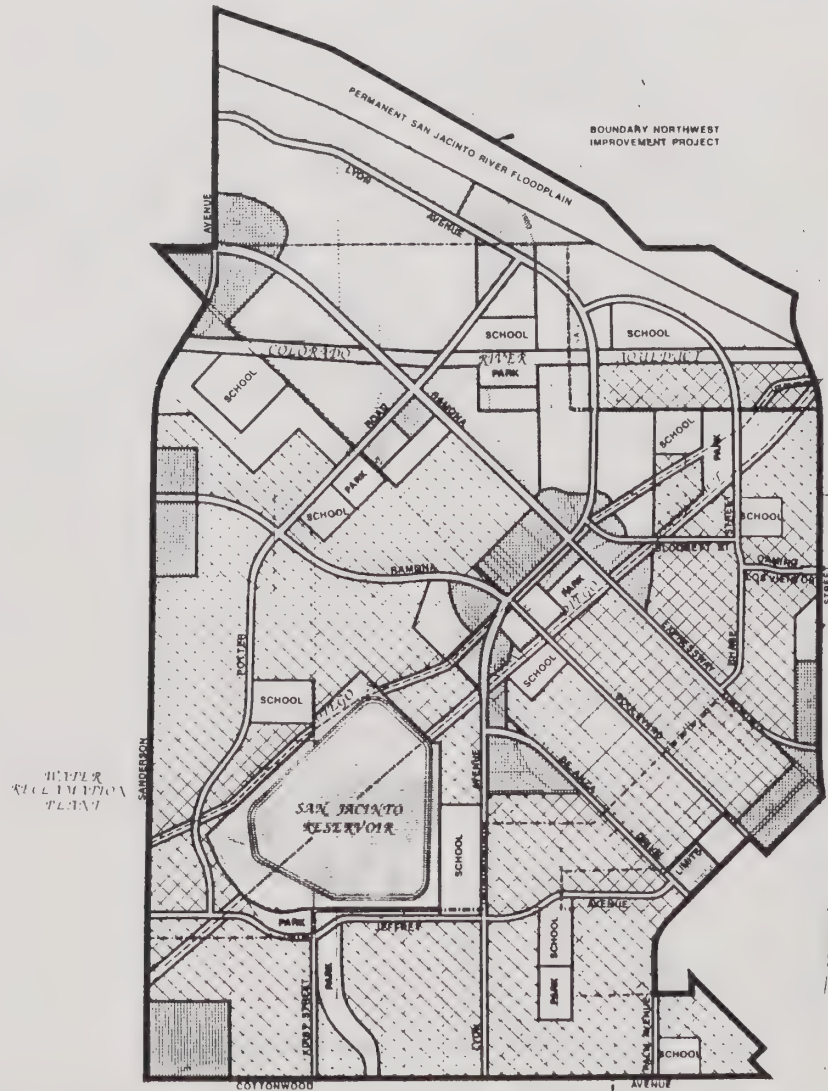
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LOWRY

1545 WEST FLORIDA AVENUE
HEMET, CA 92343
(714) 658-7116

LAND USE ELEMENT

LEGEND	
SYMBOL	LAND USE DESIGNATION
	LOW DENSITY RESIDENTIAL
	MEDIUM DENSITY RESIDENTIAL
	HIGH DENSITY RESIDENTIAL
	COMMERCIAL
	PUBLIC FACILITIES
	INDUSTRIAL
	PARKS



SHEET 1 OF 1

**NORTHWEST IMPROVEMENT PROJECT**

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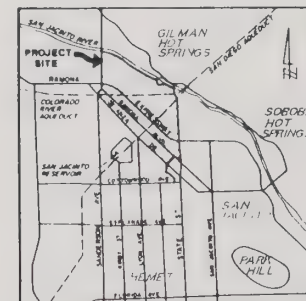
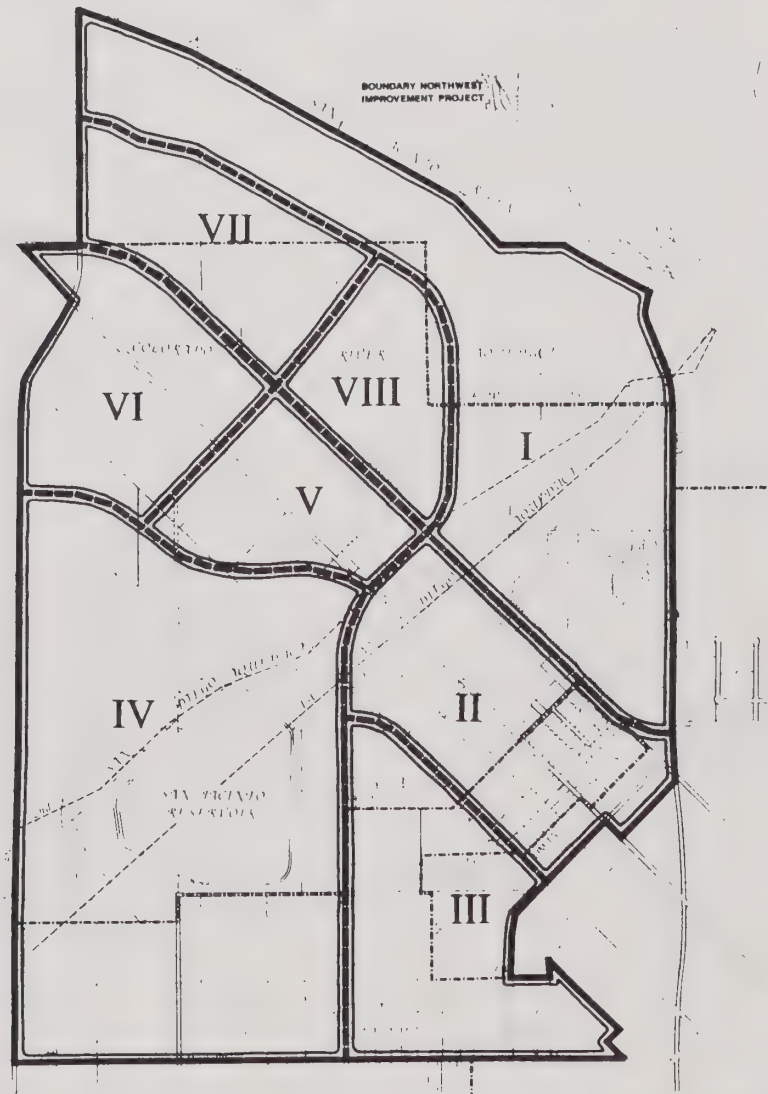
CITY OF SAN JACINTO

PLANNING AREAS

PLANNING AREAS

LEGEND

PLANNING AREA	ACREAGE	DWELLING UNITS	POPULATION
I	753	2,848	7,974
II	345	1,590	3,808
III	342	1,172	3,282
IV	1,054	2,780	7,784
V	186	940	2,884
VI	268	820	2,296
VII	238	220	816
VIII	170	1,192	3,338
TOTAL	3,337	11,340	31,782



VICINITY MAP
N.T.B.



SCALE 1" = 800'

GRAPHIC SCALE



SHEET 1 OF 1

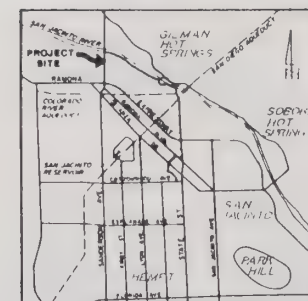


NORTHWEST IMPROVEMENT PROJECT



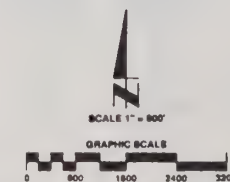
MAY 1991 REV. 07/2000 M.S. WEAVER

CIRCULATION ELEMENT



VICINITY MAP
N.T.S.

LEGEND		
SYMBOL	R.W.	DESIGNATION
	142'	SPECIFIC PLAN ROAD (WITH SCENC BACKB AND BIKE PATH)
	134'	ARTERIAL (URBAN) HIGHWAY (WITH SCENC BACKB)
	134'	ARTERIAL (URBAN) HIGHWAY (WITH NO SCENC BACKB)
	100'	MAJOR HIGHWAY
	88'	SECONDARY HIGHWAY
	66'	MODIFIED SECONDARY HIGHWAY
	66'	COLLECTOR STREET
		BIKE PATH



SHEET 1 OF 2

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MAY 1991 ESH 072 (1991) M 5: 165

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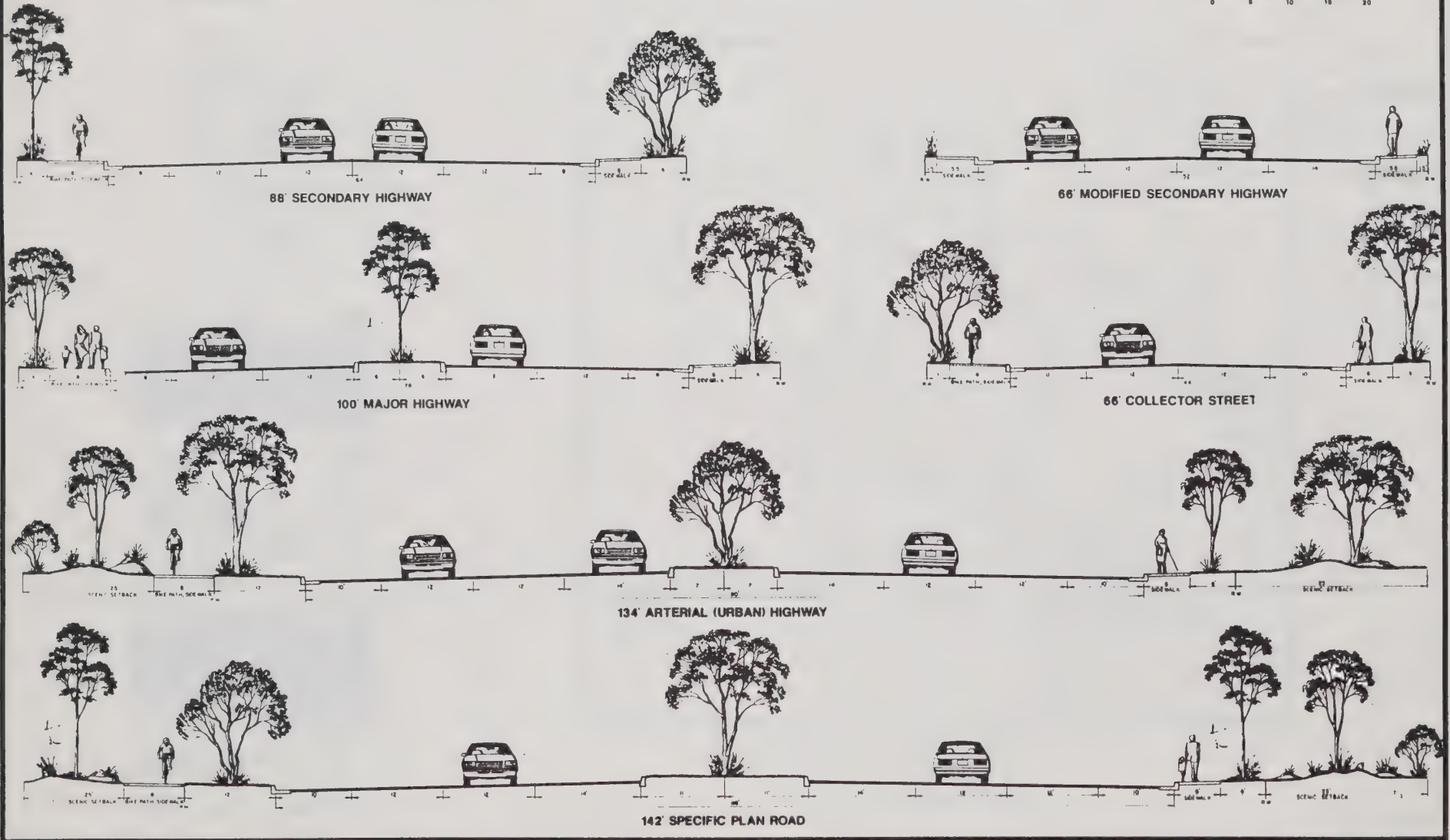
CITY OF SAN JACINTO

STREET CROSS-SECTIONS

LOWRY

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STREET CROSS SECTIONS

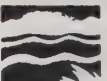


SHEET 2 OF 2



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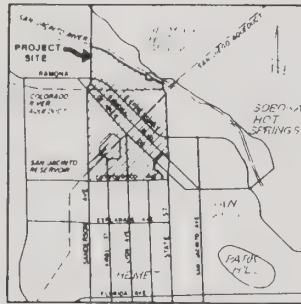


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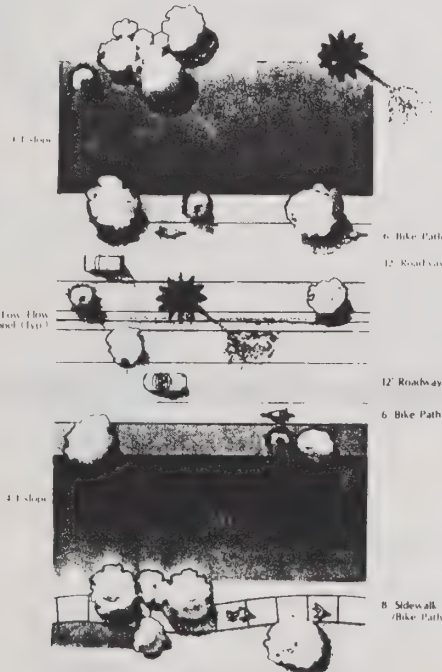
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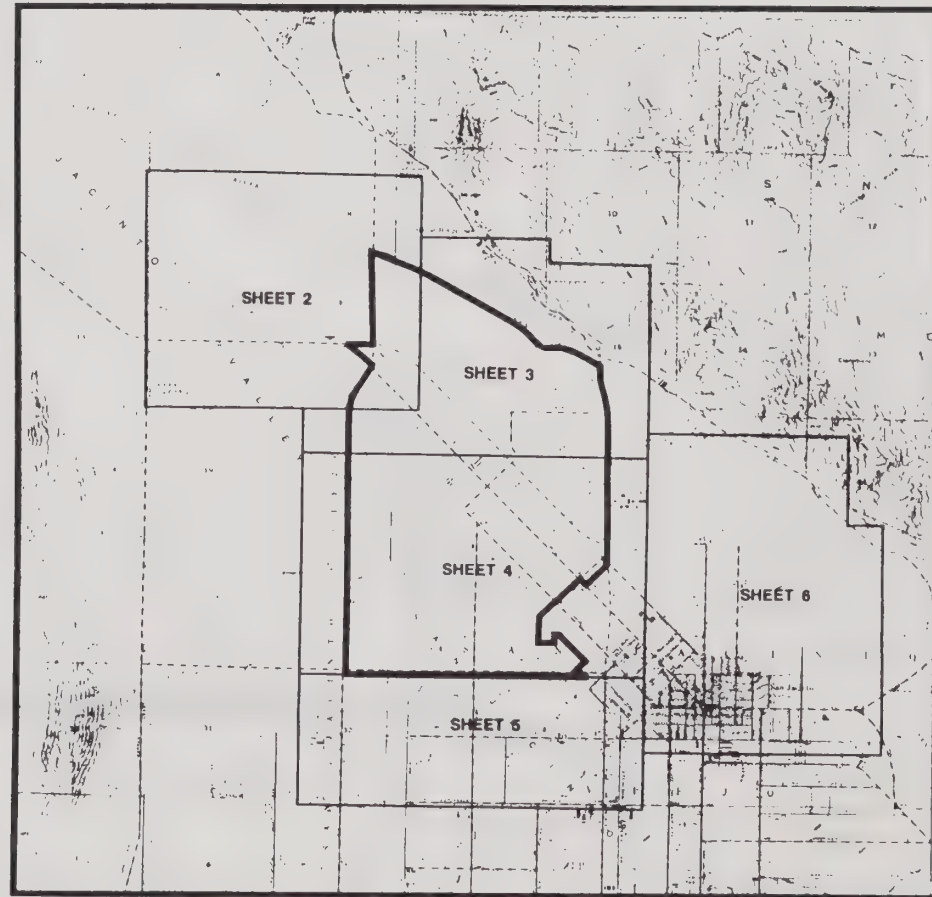
DRAINAGE MASTER PLAN



VICINITY MAP
N.T.S.



MAXIMUM CHANNEL - GRASS LINED
TYPICAL AERIAL VIEW N.T.S.



INDEX MAP

SCALE 1" = 2000'

GRAPHIC SCALE



LEGEND

SYMBOL	DESCRIPTION
100 AC 100 CFS	ACREAGE CUBIC FEET/SECOND
1005.0 1000.0	FLOWLINE (TYP) 100 YR WATER SURFACE (TYP)
—	AQUEDUCT
—	DRAINAGE CHANNEL
-----	RELOCATED DIKE SAN JACINTO RIVER
—	PROJECT BOUNDARY
—	DRAINAGE AREA BOUNDARY

TITLE SHEET

SHEET 1 OF 7

CITY OF SAN JACINTO



NORTHWEST IMPROVEMENT PROJECT



MAY 1991 8159-072.000 M 5 16549

NBS

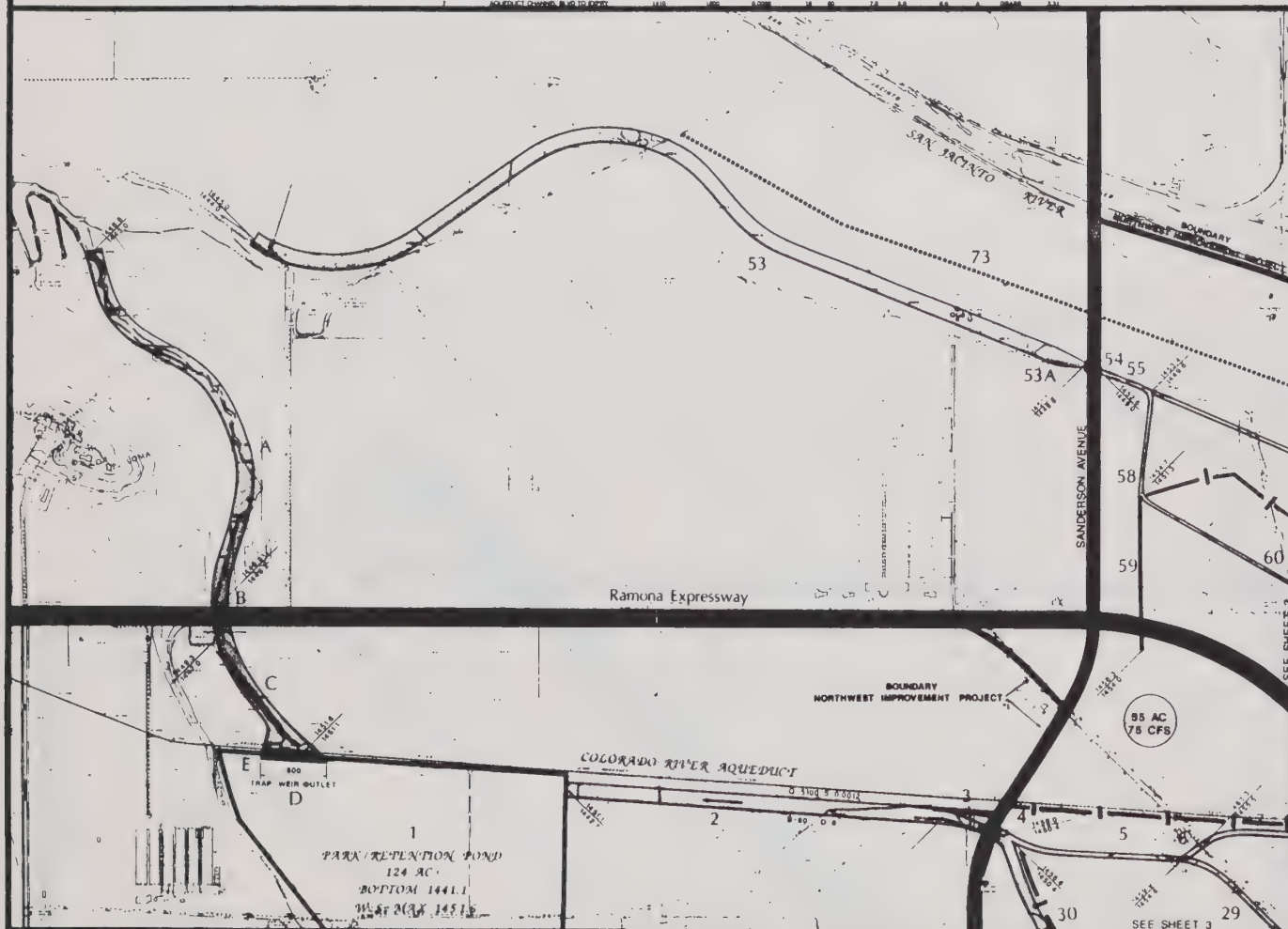
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CITY OF SAN JACINTO

DRAINAGE MASTER PLAN

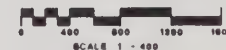
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A	OUTLET CHANNEL D/S REACH	1100	2000	0.0000	100	1.0	3.0	3.0	1	GRASS	11.07	10	FIRST REACH MAIN CHANNEL	2000	1000	0.0000	100	1.0	3.0	3.0	1	GRASS	11.07		
B	OUTLET CHANNEL RAMONA RING	1100	200	0.0000	20	1.0	3.0	3.0	1	GRASS	0.00	50	NORTHSHORE CHANNEL OUTLET SANDERSON RING	200	2000	0.0000	100	1.0	3.0	3.0	1	GRASS	11.07		
C	OUTLET CHANNEL U/S REACH	1100	1300	0.0000	100	1.0	3.0	3.0	1	GRASS	1.00	50A	NORTHSHORE CHANNEL U/S SANDERSON RING	200	100	0.0010	10	20	0.0	3.0	3.0	1	GRASS	0.00	
D	RETENTION OUTLET CONC. WEIR	1100	10	0.1	800	0.10	1.0	0.2	11.1	1	CONC. WEIR	0.12	54	NORTHSHORE CHANNEL SANDERSON TRANSITION	200	400	0.0010	10	20	0.0	3.0	3.0	1	GRASS	0.00
E	RETENTION POND SUMP PUMP SYSTEM	1100	20	N/A	N/A	30	1.0	1.0	N/A	1	PUMP SYS	0.01	54	NORTHSHORE CHANNEL E U SANDERSON	1000	1000	0.0000	0	10	0.0	3.0	3.0	1	GRASS	1.74
F	RETENTION BASIN/PARK FACILITY	2000	8000	N/A	N/A	1000	10.0	10.0	N/A	1	PARK	10.07	54	N. SIDE CHANNEL SANDERSON IN BRANCH NO. 1	100	200	0.0010	0	20	0.0	3.0	3.0	1	GRASS	1.04
G	MAIN AQUEDUCT CHANNEL	8100	3000	0.0000	100	104	7.0	0.0	0.0	1	GRASS	10.00	58	N. SIDE CHANNEL SANDERSON IN BRANCH NO. 2	75	1000	0.0010	0	20	0.0	3.0	3.0	1	GRASS	1.31
H	SANDERSON CROSSING MAIN CHANNEL	8100	200	0.0000	40	80	0.0	0.0	14.0	0	3-14" RCB	0.07	60	N. SIDE CHANNEL SANDERSON E BRANCH	110	2400	0.0010	0	20	0.0	3.0	3.0	1	GRASS	2.74
I	CHANNEL BRANCHING POINT	8100	100	0.0000	100	170	0.0	0.0	0.0	1	GRASS	0.00	70	SAN JACINTO RIVER DRG RELOCATION	N/A	20000	N/A	N/A	110	N/A	N/A	1	GRASS	10.14	
J	REALIGNED RAMONA BLVD CHANNEL	1000	1400	0.0000	20	70	0.0	0.0	0.0	2	GRASS	2.01													
K	CHANNEL BRANCH RAMONA BLVD RING	1010	200	0.0000	14	20	0.0	0.0	10.0	0	1-10" RCB	0.10													
L	AQUEDUCT CHANNEL BLVD TO EMPIRE	1010	100	0.0000	10	80	7.0	0.0	0.0	1	GRASS	2.01													



NO. DESCRIPTION OF FACILITY

- A OUTLET CHANNEL D/S REACH
- B OUTLET CHANNEL RAMONA RING
- C OUTLET CHANNEL U/S REACH
- D RETENTION OUTLET CONC. WEIR
- E RETENTION POND SUMP PUMP
- F RETENTION BASIN/PARK FACILITY
- G MAIN AQUEDUCT CHANNEL
- H SANDERSON CROSSING MAIN CHANNEL
- I CHANNEL BRANCHING POINT
- J REALIGNED RAMONA BLVD CHANNEL
- K CHANNEL BRANCH RAMONA BLVD RING
- L AQUEDUCT CHANNEL BLVD TO EMPIRE
- 10 FIRST REACH MAIN CHANNEL
- 53 NORTHSHORE CHANNEL OUTLET SANDERSON
- 54A NORTHSHORE CHANNEL U/S SANDERSON RING
- 54 NORTHSHORE CHANNEL SANDERSON TRANSITION
- 55 NORTHSHORE CHANNEL E U SANDERSON
- 58 INSIDE CHANNEL SANDERSON BRANCH NO. 1
- 59 INSIDE CHANNEL SANDERSON BRANCH NO. 2
- 60 INSIDE CHANNEL SANDERSON E BR.
- 70 RELOCATED SAN JACINTO RIVER DRG

LEGEND-SEE SHEET 1



SHEET 2 OF 7



NORTHWEST IMPROVEMENT PROJECT



MAY 1991 11:56 AM 11/2/1991

MAY 1991

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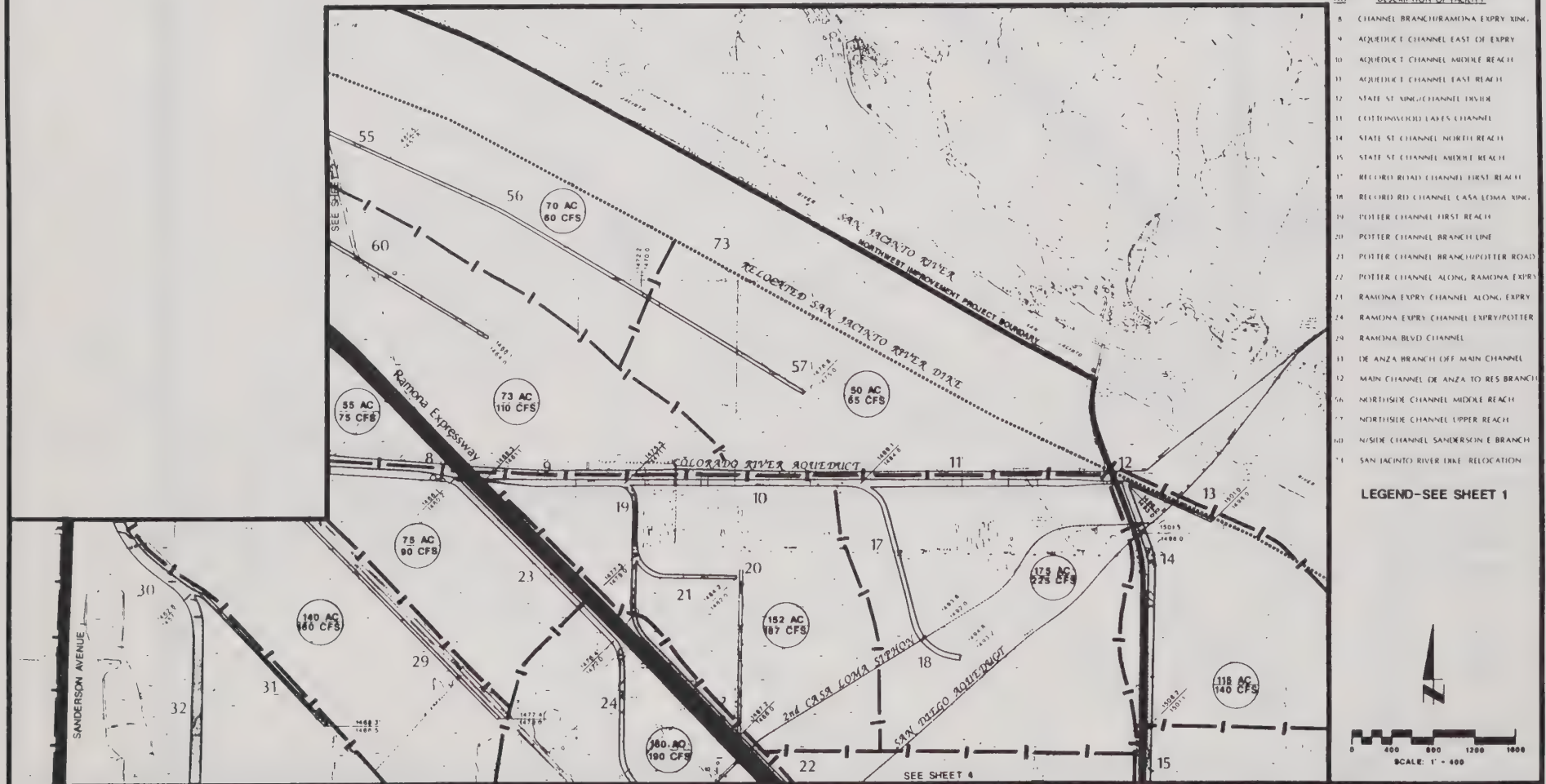
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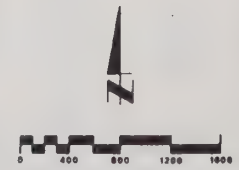
DRAINAGE MASTER PLAN

FACILITY NUMBER	DESCRIPTION OF FACILITY	FLOW CFS	LENGTH	MINIMUM SLOPE	BOTTOM	WIDTH	DEPTH	CHANNEL	FLOW VELOCITY	SIDE SLOPE	TYPE OF CHANNEL	AREA OF FACILITY	FACILITY NUMBER	DESCRIPTION OF FACILITY	FLOW CFS	LENGTH	MINIMUM SLOPE	BOTTOM	WIDTH	DEPTH	CHANNEL	FLOW VELOCITY	SIDE SLOPE	TYPE OF CHANNEL	AREA OF FACILITY
8	CHANNEL BRANCH RAMONA EXPY KING	800	300	0.0038	10	34	8.0	7.3	1.1	2	10-12 FCB	8.12	21	POTTER CHANNEL BRANCH POTTER RD	40	200	0.0040	5	24	2.0	1.0	3.1	4	GRADE	1.70
9	AQUEDUCT CHANNEL EAST OF EXPY	800	1300	0.0074	5	34	5.0	4.6	7.7	4	GRADE	1.07	22	POTTER CHANNEL ALONG RAMONA EXPY	40	1400	0.0060	5	30	2.0	1.1	3.4	4	GRADE	1.40
10	AQUEDUCT CHANNEL MIDDLE REACH	770	2200	0.0069	5	30	6.0	4.7	6.6	4	GRADE	3.37	23	RAMONA EXPY CHANNEL ALONG EXPY	970	2000	0.0067	5	30	5.0	4.4	6.5	4	GRADE	3.00
11	AQUEDUCT CHANNEL EAST REACH	640	1400	0.0073	5	30	6.5	5.1	6.7	4	GRADE	3.04	24	RAMONA EXPY CHANNEL EXPY/POTTER	900	2100	0.0067	5	34	3.0	2.0	6.2	4	GRADE	3.00
12	STATE ST KING CHANNEL DIVIDE	840	300	0.0030	12	30	8.0	5.0	8.1	2	10-12 FCB	0.08	25	RAMONA BLVD CHANNEL	100	3400	0.0050	5	42	3.0	2.4	4.0	4	GRADE	2.20
13	COTTONWOOD LAKES CHANNEL	140	300	0.0054	5	30	3.0	2.2	3.4	4	GRADE	0.62	26	DE ANZA BRANCH OFF MAIN CHANNEL	80	1800	0.0050	5	30	3.0	1.5	2.5	4	GRADE	1.00
14	STATE ST CHANNEL NORTH REACH	140	2400	0.0018	5	30	6.0	5.1	4.0	4	GRADE	3.42	27	MAIN CHANNEL DE ANZA TO RES BRANCH	3000	2400	0.0050	5	114	7.0	6.1	7.0	4	GRADE	2.00
15	STATE ST CHANNEL MIDDLE REACH	100	1800	0.0058	5	30	4.5	3.4	3.8	4	GRADE	1.04	28	NORTHSIDE CHANNEL MIDDLE REACH	100	2000	0.0044	5	30	3.0	2.2	4.1	4	GRADE	2.40
16	RECORD ROAD CHANNEL FIRST REACH	225	1700	0.0014	5	30	4.5	3.0	4.0	4	GRADE	1.00	29	NORTHSIDE CHANNEL UPPER REACH	80	1800	0.0050	5	30	3.0	1.5	2.5	4	GRADE	1.00
17	RECORD RD CHANNEL CASA LOMA KING	235	400	0.0077	40	30	3.5	1.8	3.1	4	GRADE	0.70	30	NISSE CHANNEL SANDERSON E BRANCH	110	3100	0.0047	5	30	3.0	2.1	3.7	4	GRADE	2.70
18	POTTER CHANNEL FIRST REACH	180	750	0.0052	5	30	3.5	2.5	4.7	4	GRADE	0.72	31	SAN JACINTO RIVER INKE RELOCATION	8	23000	0.0005	5	112	0.0	0.0	0.0	4	GRADE	10.14
19	POTTER CHANNEL BRANCH LINE	180	1150	0.0051	5	30	3.5	2.2	4.7	4	GRADE	1.11													



NO.	DESCRIPTION OF FACILITY
8	CHANNEL BRANCH RAMONA EXPY KING
9	AQUEDUCT CHANNEL EAST OF EXPY
10	AQUEDUCT CHANNEL MIDDLE REACH
11	AQUEDUCT CHANNEL EAST REACH
12	STATE ST KING CHANNEL DIVIDE
13	COTTONWOOD LAKES CHANNEL
14	STATE ST CHANNEL NORTH REACH
15	STATE ST CHANNEL MIDDLE REACH
16	RECORD ROAD CHANNEL FIRST REACH
17	POTTER CHANNEL FIRST REACH
18	POTTER CHANNEL BRANCH LINE
19	POTTER CHANNEL BRANCH/POTTER ROAD
20	POTTER CHANNEL ALONG RAMONA EXPY
21	RAMONA EXPY CHANNEL ALONG EXPY
22	RAMONA EXPY CHANNEL EXPY/POTTER
23	RAMONA BLVD CHANNEL
24	DE ANZA BRANCH OFF MAIN CHANNEL
25	MAIN CHANNEL DE ANZA TO RES BRANCH
26	NORTHSIDE CHANNEL MIDDLE REACH
27	NORTHSIDE CHANNEL UPPER REACH
28	NISSE CHANNEL SANDERSON E BRANCH
29	SAN JACINTO RIVER INKE RELOCATION

LEGEND-SEE SHEET 1



SHEET 3 OF 7

CITY OF SAN JACINTO



NORTHWEST IMPROVEMENT PROJECT



MAY 1991 1159 (172) (M) M 5-10149

NBS

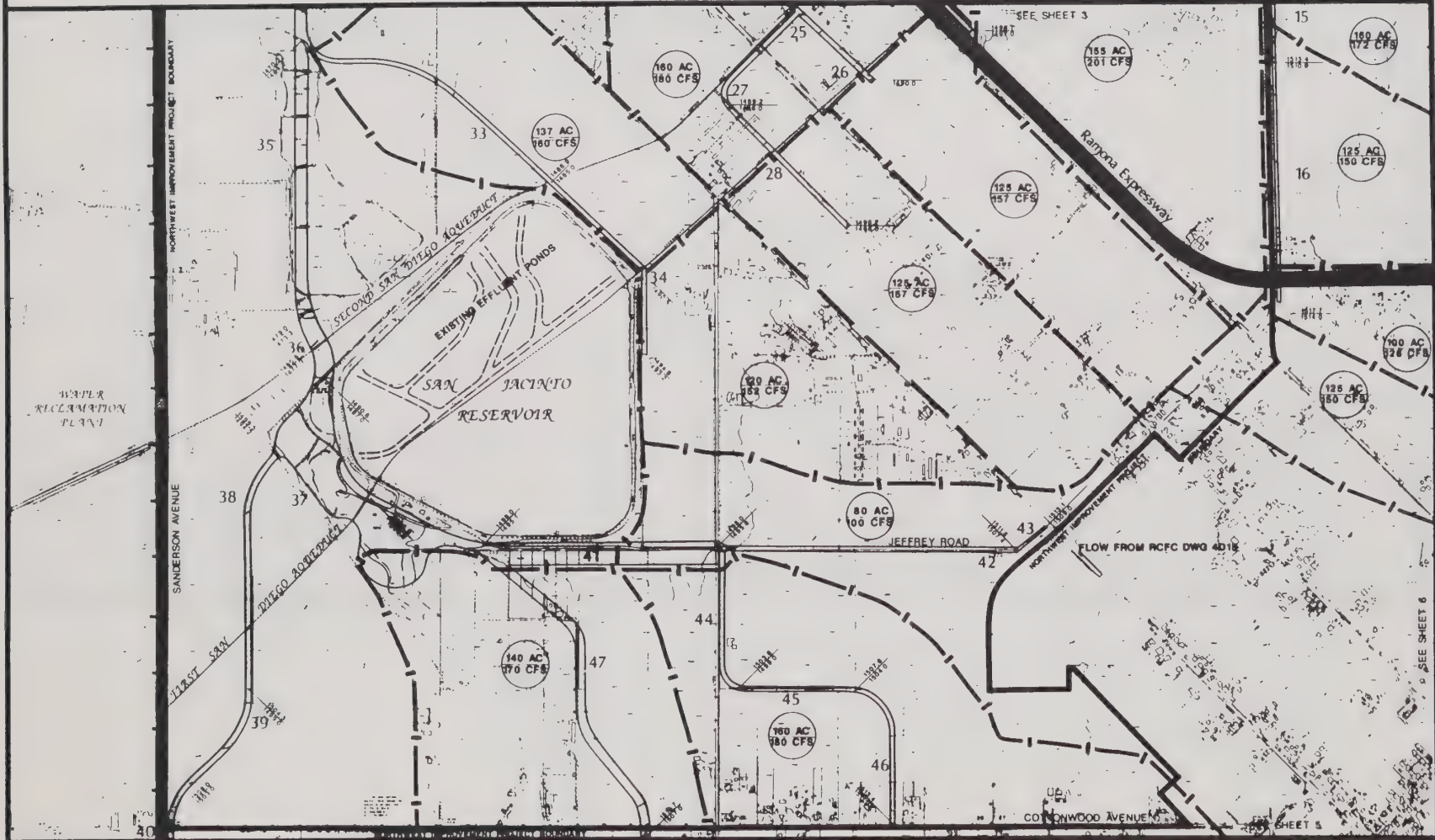
LOWRY

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CITY OF SAN JACINTO

DRAINAGE MASTER PLAN

FACILITY NUMBER	DESCRIPTION OF FACILITY	FLOW CFS	LENGTH	MINIMUM SLOPE	BOTTOM	WIDTH	DEPTH	CHANNEL	FLOW VELOCITY	SIZE	TYPE OF CHANNEL	FACILITY NUMBER	DESCRIPTION OF FACILITY	FLOW CFS	LENGTH	MINIMUM SLOPE	BOTTOM	WIDTH	DEPTH	CHANNEL	FLOW VELOCITY	SIZE	TYPE OF CHANNEL	AREA OF FACILITY
15	STATE ST CHANNEL MIDDLE REACH	200	100	0.0004	0	30	1.0	1.0	3.7	1.0	GRASS	16	FIRST REACH SANDERSON CHANNEL	200	2400	0.0002	0	10	0.3	0.3	4.5	1	GRASS	2.04
16	STATE ST CHANNEL COLLEGE REACH	200	1000	0.0004	0	30	1.0	1.0	3.7	1.0	GRASS	20	MIDDLE REACH SANDERSON CHANNEL	200	1000	0.0002	0	10	0.3	0.3	4.5	1	GRASS	2.04
25	RAMONA EXPY CHANNEL POTTER/MIW X	200	100	0.0004	0	30	1.0	1.0	3.7	1.0	GRASS	26	SANDERSON CHANNEL ALONG SANDERSON	200	1700	0.0001	0	50	1.0	1.0	11	1	GRASS	2.08
26	RAMONA EXPY CHANNEL BRANCH W/MIW X	160	1000	0.0004	0	30	1.0	1.0	3.7	1.0	GRASS	31	JEFFREY ROAD CHANNEL W/O LYON	1400	3000	0.0002	170	200	3	1.0	8	CONCRETE	19.07	
27	RAMONA EXPY CHANNEL ALONG POTTER	200	1000	0.0012	10	30	3.0	3.0	2.0	0	GRASS	32	JEFFREY ROAD CHANNEL E/O LYON	200	7000	0.0005	0	50	1.0	1.0	5.7	1	GRASS	2.08
28	RAMONA EXPY CHANNEL END/MIW XING	160	1800	0.0001	0	30	3.0	3.0	2.0	0	GRASS	33	JEFFREY ROAD CHANNEL TO DE ANZA	200	100	0.0040	0	30	1.0	1.0	11.9	2	CONCRETE	0.30
33	FIRST REACH RESERVOIR BRANCH LINE	1800	3000	0.0014	20	32	3.0	3.0	1.0	6.6	GRASS	34	LYON CHANNEL FIRST REACH	200	1400	0.0001	0	30	1.0	1.0	4.4	1	GRASS	1.00
34	UPPER REACH RESERVOIR BRANCH LINE	1300	2000	0.0040	20	40	2.0	1.0	3.0	6	GRASS	35	LYON CHANNEL MIDDLE REACH	200	1400	0.0004	0	30	1.0	1.0	4.4	1	GRASS	1.00
35	MAIN CHANNEL S/O RESERVOIR BRANCH	3000	2000	0.0008	50	110	7.0	5.7	7.0	4	GRASS	36	LYON CHANNEL COTTONWOOD REACH	200	1900	0.0041	20	50	3.0	3.0	4.9	6	GRASS	1.00
36	MAIN CHANNEL CASA LOMA XING	2400	700	0.0002	100	140	4.0	3.0	7.0	4	IMP RUMPT	37	MAIN CHANNEL RES/COTTONWOOD AVE	1300	3400	0.0008	80	94	1.1	3.0	5.0	6	GRASS	7.54
37	MAIN CHANNEL ON RESERVOIR PROPERTY	2600	1700	0.0018	300	140	4.0	2.9	6.1	4	GRASS													



NO.	DESCRIPTION OF FACILITY
15	STATE ST CHANNEL MIDDLE REACH
16	STATE ST CHANNEL COLLEGE REACH
25	RAMONA EXPY CHANNEL POTTER/MIW X
26	RAMONA EXPY CHANNEL BRANCH W/MIW X
27	RAMONA EXPY CHANNEL ALONG POTTER
28	RAMONA EXPY CHANNEL END/MIW XING
33	FIRST REACH RESERVOIR BRANCH LINE
34	UPPER REACH RESERVOIR BRANCH LINE
35	MAIN CHANNEL S/O RESERVOIR BRANCH
36	MAIN CHANNEL CASA LOMA XING
37	MAIN CHANNEL ON RESERVOIR PROPERTY
38	FIRST REACH SANDERSON CHANNEL
39	MIDDLE REACH SANDERSON CHANNEL
40	SANDERSON CHANNEL ALONG SANDERSON
41	JEFFREY ROAD CHANNEL W/O LYON
42	JEFFREY ROAD CHANNEL E/O LYON
43	JEFFREY ROAD CHANNEL TO DE ANZA
44	LYON CHANNEL FIRST REACH
45	LYON CHANNEL MIDDLE REACH
46	LYON CHANNEL COTTONWOOD REACH
47	MAIN CHANNEL RES/COTTONWOOD AVE

LEGEND
SEE SHEET 1

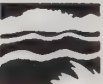


SHEET 4 OF 7

CITY OF SAN JACINTO



NORTHWEST IMPROVEMENT PROJECT



MAY 1991 1519-072.090 M 1-16146

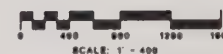


DESCRIPTION OF FACILITY

- 19 MIDDLE REACH SANDERSON CHANNEL
- 40 SANDERSON CHANNEL ALONG SANDERSON
- 46 LYON CHANNEL COTTONWOOD REACH
- 47 MAIN CHANNEL WEST COTTONWOOD AVE
- 48 MAIN CHANNEL COTTONWOOD/LYON
- 49 MAIN CHANNEL LYON/SEVENTH
- 50 MAIN CHANNEL SEVENTH VALLEY TRANS S
- 50A MAIN CHANNEL - TRANS AT WL
- 50B MAIN CHANNEL - TRANS TO JUNCT
- 51 MAIN CHANNEL VALLEY WIDE/STATE ST
- 52 WEST VALLEY WIDE CHANNEL

LEGEND-SEE SHEET 1

FACILITY NUMBER	DESCRIPTION OF FACILITY	FLOW CFS	LENGTH	MINIMUM SLOPE	BOTTOM CHAN. FLOW	DEPTH CHAN. FLOW	FLOW VELOCITY	BOE SLOPE	TYPE OF CHANNEL	AREA OF FACILITY		
39	MIDDLE REACH SANDERSON CHANNEL	800	1000	0.0000	0	0.0	0.0	4.0	4	GRASS	7.00	
40	SANDERSON CHANNEL ALONG SANDERSON	800	2700	0.0000	0	0.0	0.7	4.4	4	GRASS	2.00	
46	LYON CHANNEL COTTONWOOD REACH	340	1800	0.0047	30	10	3.0	4.0	4	GRASS	1.00	
47	MAIN CHANNEL WES. COTTONWOOD AVE	1300	3400	0.0006	50	54	4.0	5.0	5.0	4	GRASS	7.34
48	MAIN CHANNEL COTTONWOOD/LYON	1300	1900	0.0094	30	36	6.0	6.0	6.0	4	GRASS	2.00
49	MAIN CHANNEL LYON/SEVENTH	1300	2000	0.0094	30	36	6.0	6.0	6.0	4	GRASS	2.00
50	MAIN CHANNEL SEVENTH VALLEY TRANS S	1270	1000	0.0012	60	102	6.0	6.0	6.0	4	GRASS	3.40
50A	MAIN CHANNEL TRANS AT WL	1270	300	0.0107	75	100	3.2	6.0	7.0	2.0	GRASS	0.70
50B	MAIN CHANNEL TRANS TO JUNCT	1270	400	0.0000	100	110	3.2	6.0	4.3	1.0	CONCRETE	1.21
51	MAIN CHANNEL VALLEY WIDE/STATE ST	1150	2100	0.0000	40	40	6.0	6.0	4.0	1.0	CONCRETE	3.17
52	WEST VALLEY WIDE CHANNEL	100	1400	0.0000	0	04	6.0	6.0	2.3	4	GRASS	1.74



SHEET 5 OF 7

CITY OF SAN JACINTO



NORTHWEST IMPROVEMENT PROJECT



MAY 1991 1159 (172.00) M 5 16548

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FACILITY NUMBER	DESCRIPTION OF FACILITY	FLOW CFS	LENGTH	MINIMUM SLOPE	BOTTOM WIDTH	WIDTH	DEPTH	FLOW VELOCITY	SIDE SLOPE	TYPE OF CHANNEL	AREA OF CHANNEL	
61	OUTLET FOR SAN JACINTO AVE CHANNEL	800	80	0.0012	75	32	6.0	4.2	7.0	0	CONCRETE	0.88
62	SAN JACINTO AVE CHANNEL NO REACH	800	1800	0.0012	75	32	6.0	4.2	7.0	0	CONCRETE	1.44
63	SAN JACINTO AVE CHANNEL NO REACH	813	2000	0.0014	70	26	6.1	4.3	9.0	0	CONCRETE	1.29
64	SL AVE CHANNEL RAMONA EXPY SLO	480	200	0.0016	30	20	6.0	4.0	6.0	0	2-BUILDING	0.13
65	SL AVE CHANNEL W ALONG RAMONA EXPY	410	480	0.0020	10	15	7.0	4.0	6.0	0	CONCRETE	0.37
66	SL AVE CHANNEL FROM RAMONA EXPY	410	3000	0.0032	5	50	4.5	3.0	4.0	0	GRASS	3.44
67	SL AVE CHANNEL FROM ANGLE TO SL AVE	320	1180	0.0047	5	50	4.5	3.3	5.2	0	GRASS	1.20
68	SL AVE CHANNEL SL AVE MONTROSE AVE	320	1100	0.0064	5	42	3.6	3.0	5.0	0	GRASS	1.04
69	RAMONA EXPY E CHANNEL MONTROSE AVE	310	7000	0.0080	5	40	4.0	3.2	5.2	0	GRASS	3.11
70	RAMONA EXPY E CHANNEL MONTROSE AVE	280	7800	0.0084	5	50	4.0	3.0	4.6	0	GRASS	3.33
71	RAMONA EXPY E CHANNEL CAMINO LOS BANCOS	280	3800	0.0081	5	40	4.0	3.0	5.1	0	GRASS	3.80
72	MAIN STREET OUTLET STRUCTURE	100	80	0.0100	7	15	4.0	3.0	7.0	0	1-4" ACB	0.03
73	SAN JACINTO RIVER DUNE RELOCATION	0	10000	0.0088	0	112	0.0	0.0	5.0	0	GRASS	34.14

- NO. DESCRIPTION OF FACILITY
- 61 OUTLET FOR SAN JACINTO AVE CHANNEL
 - 62 SAN JACINTO AVE CHANNEL NORTH REACH
 - 63 SAN JACINTO AVE CHANNEL SOUTH REACH
 - 64 SAN JACINTO AVE CHANNEL RAMONA EXPY SLO
 - 65 SAN JACINTO AVE CHANNEL W ALONG RAMONA EXPY
 - 66 SAN JACINTO AVE CHANNEL S FROM RAMONA EXPY
 - 67 SAN JACINTO AVE CHANNEL FROM ANGLE TO SAN JACINTO AVE
 - 68 SAN JACINTO AVE CHANNEL SAN JACINTO AVE/MONTROSE
 - 69 RAMONA EXPY E CHANNEL MONTROSE AVE
 - 70 RAMONA EXPY E CHANNEL MONTROSE AVE
 - 71 RAMONA EXPY E CHANNEL CAMINO LOS BANCOS
 - 72 MAIN STREET OUTLET STRUCTURE
 - 73 SAN JACINTO RIVER DUNE RELOCATION

LEGEND-SEE SHEET 1

SCALE: 1" = 400'

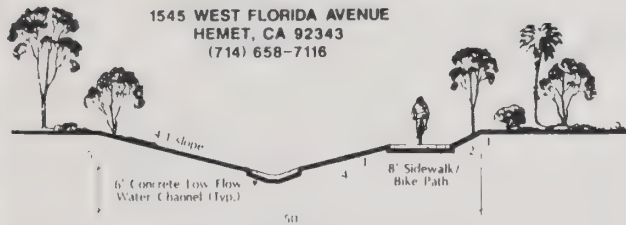


NORTHWEST IMPROVEMENT PROJECT



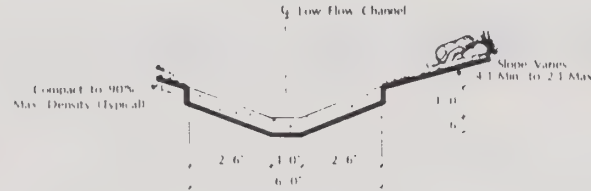
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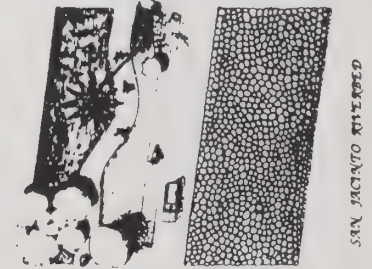
MINIMUM CHANNEL - GRASS LINED

Typical Section N.T.S.

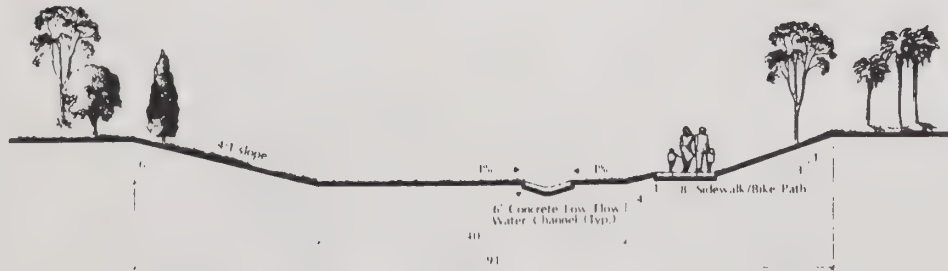


DETAIL - LOW FLOW WATER CHANNEL

N.T.S.

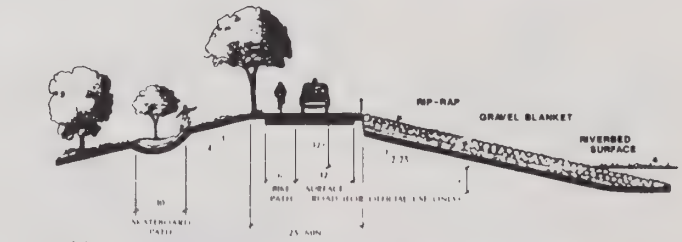


AERIAL VIEW
SOUTH LEVEE (RELOCATED)
SAN JACINTO RIVER

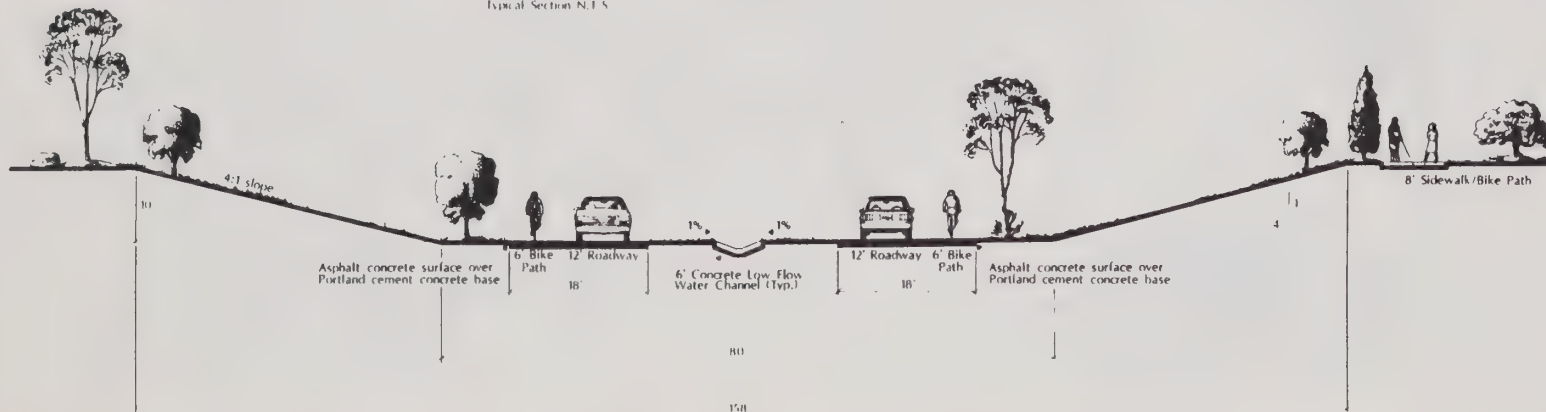


INTERMEDIATE CHANNEL - GRASS LINED

Typical Section N.T.S.



SOUTH LEVEE (RELOCATED) - SAN JACINTO RIVER



MAXIMUM CHANNEL - GRASS LINED

Typical Section N.T.S.



NBS

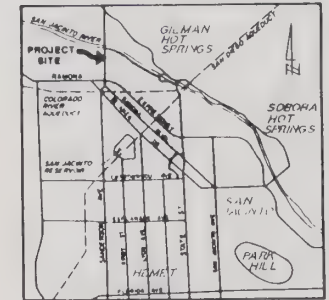
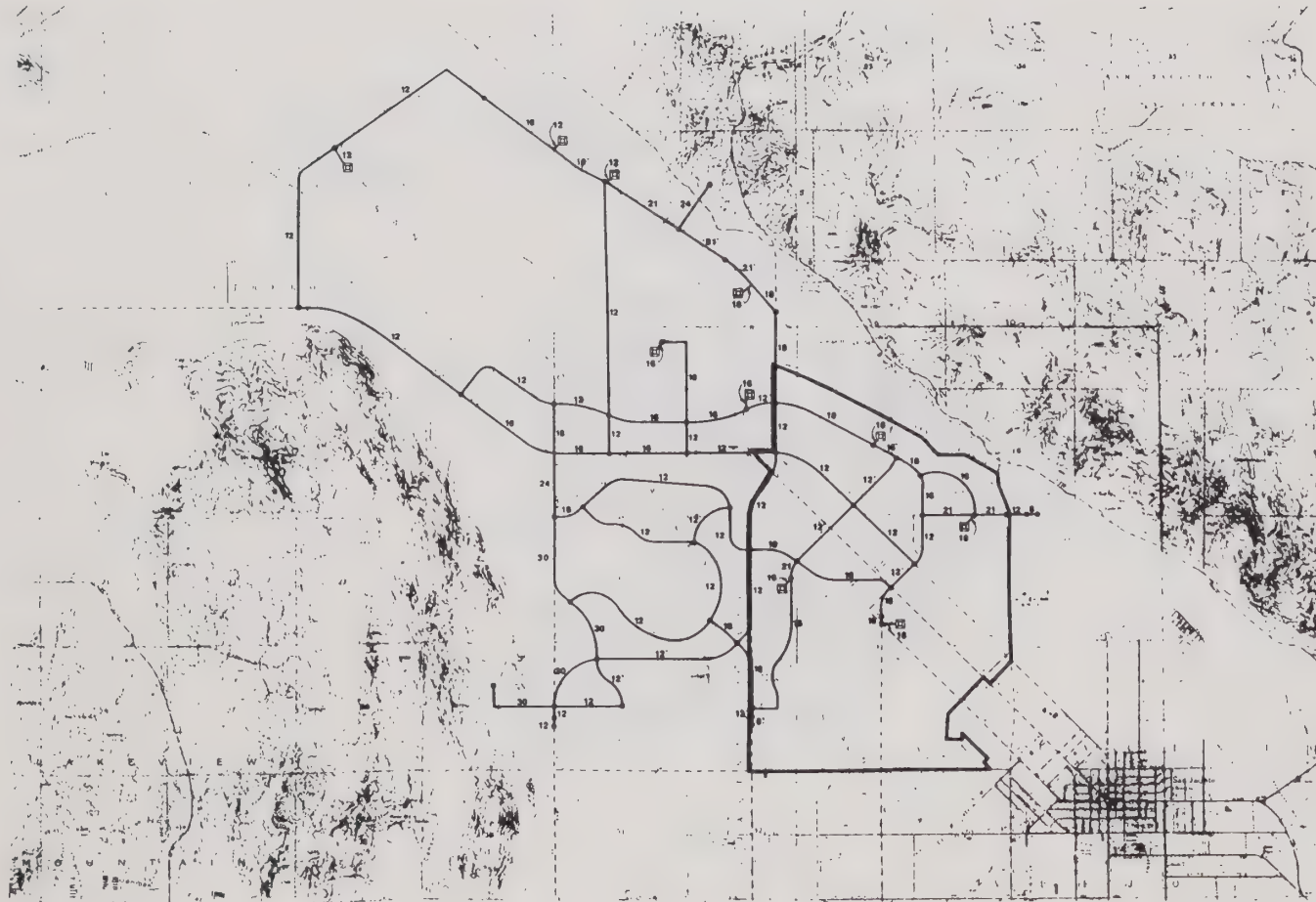
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CITY OF SAN JACINTO

E.M.W.D. WATER MASTER PLAN

E.M.W.D. WATER MASTER PLAN



VICINITY MAP
N.T.S.

LEGEND

- 18" PIPE DIAMETER IN INCHES
- PIPE
- NORTHWEST IMPROVEMENT PROJECT BOUNDARY



SCALE 1"=2000'

GRAPHIC SCALE



SHEET 1 OF 2



NORTHWEST IMPROVEMENT PROJECT

CITY OF SAN JACINTO



MAY 1991 1559-072.090 M-1-1-W549

NBS

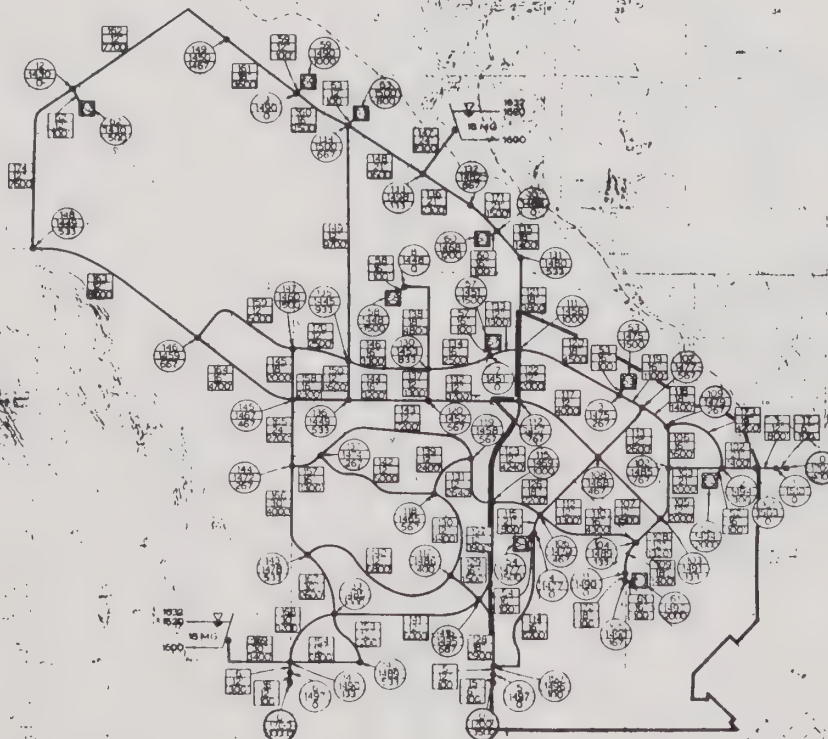
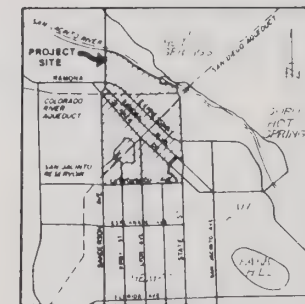
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CITY OF SAN JACINTO

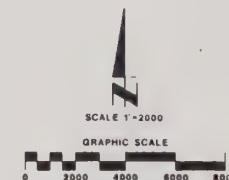
WATER SYSTEM NODAL MAP

WATER SYSTEM NODAL MAP



LEGEND

- NODE
 NODE NUMBER
 NODE ELEVATION
 NODAL -- DEMAND IN GALLONS PER MINUTE
 OR -- SUPPLY IN GALLONS PER MINUTE
- FIXED HYDRAULIC GRADE
 MAXIMUM AVAILABLE SUPPLY FROM
 FIXED HYDRAULIC GRADE
- PIPE
 PIPE NUMBER
 PIPE DIAMETER IN INCHES
 PIPE LENGTH IN FEET
- WELL AND WELL NUMBER
 (- SUPPLY)
- TOP OF TANK ELEVATION
 WATER SURFACE ELEVATION
 TANK CAPACITY (18 MG-18 MILLION GALLON VOLUME)
 BOTTOM OF TANK ELEVATION
- NORTHWEST IMPROVEMENT PROJECT BOUNDARY



SHEET 2 OF 2



NORTHWEST IMPROVEMENT PROJECT



NBS

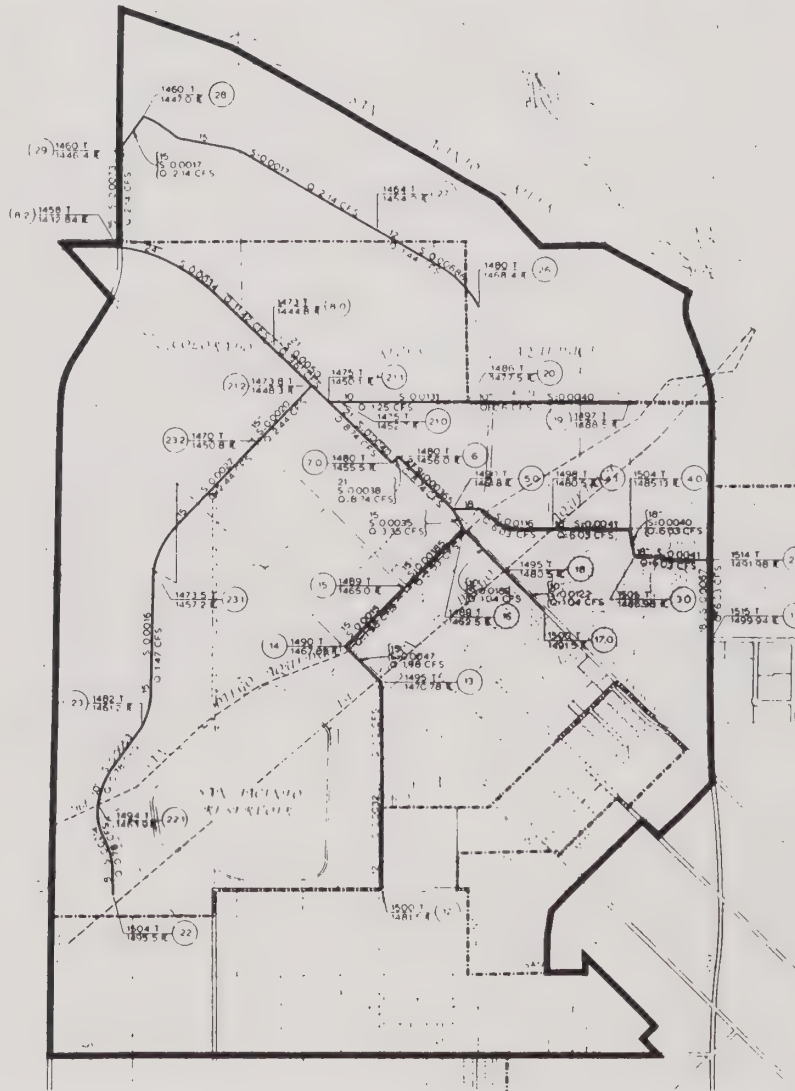
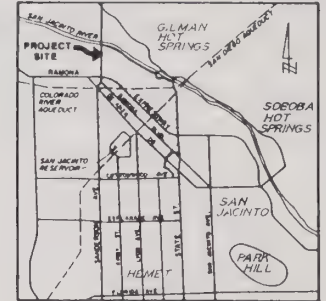
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CITY OF SAN JACINTO

E.M.W.D. SEWER MASTER PLAN

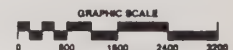
E.M.W.D. SEWER MASTER PLAN



LEGEND

- TOP OF FINISHED SURFACE ELEVATION
- (10) — NODE NUMBER
- FLOWLINE OF PIPE ELEVATION
- NORTHWEST IMPROVEMENT PROJECT BOUNDARY

SCALE 1" = 800'



SHEET 1 OF 1



NORTHWEST IMPROVEMENT PROJECT

CITY OF SAN JACINTO



MAY 1981 1155 073 090 M 5-16549

APPENDIX A

Appendix A

09-Oct-91 TOTAL MASTER PLAN

FACILITY NUMBER	DESCRIPTION OF FACILITY	FLOW CFS	LENGTH	MINIMUM SLOPE	WIDTH BOTTOM	WIDTH R/W	DEPTH CHANNEL	DEPTH FLOW	FLOW VEL.	SIDE SLOPE	TYPE OF CHANNEL	AREA OF FACILITY	LAND COST	CONSTRUCTION COST	LANDSCAPE COST	TOTAL COST	FLOOD CONT COST	RECREATION COST
A	OUTLET CHANNEL D/S REACH	1300	3600	0.0009	100	140	4.0	3.6	3.2	4	GRASS	11.57	\$138,843	\$1,750,000	\$468,720	\$2,357,563	\$2,193,511	\$164,052
B	OUTLET CHANNEL RAMONA XING	1160	250	0.0032	32	40	4.0	3.3	11	0	4 - 4 X 8 RCB	0.23	\$2,755	\$1,111	\$9,300	\$13,166	\$9,911	\$3,255
C	OUTLET CHANNEL U/S REACH	1160	1300	0.0032	100	136	3.5	2.3	4.6	4	GRASS	4.06	\$48,705	\$550,000	\$164,424	\$763,129	\$705,581	\$57,548
D	RETENTION OUTLET CONC. WEIR	1160	10	0.1	500	516	1.0	0.2	11.1	4	CONC. WEIR	0.12	\$1,421	\$237	\$4,799	\$6,457	\$4,778	\$1,680
E	RETENTION POND SUMP PUMP SYSTEM	100	20	N/A	N/A	20	1.5	1.5	N/A	N/A	PUMP SYST.	0.01	\$110	\$150,000	\$372	\$150,482	\$150,352	\$130
1	RETENTION BASIN/PARK FACILITY	6850	3000	N/A	N/A	1800	10.5	10.0	N/A	20	PARK	123.97	\$1,487,603	\$1,750,000	\$5,022,000	\$8,259,603	\$6,501,903	\$1,757,700
2	MAIN AQUEDUCT CHANNEL	5100	3200	0.0020	100	164	7.0	6.2	6.6	4	GRASS	12.05	\$144,573	\$141,037	\$488,064	\$773,674	\$602,852	\$170,822
3	SANDERSON CROSSING MAIN CHANNEL	5100	500	0.0020	42	50	8.0	8.3	14.6	0	3 - 8 X 14 RCB	0.57	\$6,887	\$550,000	\$23,250	\$580,137	\$572,000	\$8,137
4	CHANNEL BRANCHING POINT	5100	150	0.0020	100	172	8.0	6.2	6.6	4	GRASS	0.59	\$7,107	\$7,778	\$23,994	\$38,879	\$30,481	\$8,398
5	REALIGNED RAMONA BLVD CHANNEL	1525	1400	0.0030	25	72	6.5	5.3	6.3	3	GRASS	2.31	\$27,769	\$22,118	\$93,744	\$143,631	\$110,820	\$32,810
6	CHANNEL BRANCH-PAC.NO.7 @ PAC.NO.29	1525	300	0.0030	25	72	6.5	5.3	6.3	3	GRASS	0.50	\$5,950	\$200,000	\$20,088	\$226,038	\$219,008	\$7,031
7	AQUEDUCT CHANNEL BLVD TO EXPRY	1410	1800	0.0026	16	80	7.0	5.9	6.0	4	GRASS	3.31	\$39,669	\$34,417	\$133,920	\$208,006	\$161,134	\$46,872
8	CHANNEL BRANCH/RAMONA EXPRY XING	800	300	0.0030	10	18	8.0	7.2	11.2	0	1 - 8 X 10 RCB	0.12	\$1,488	\$200,000	\$5,022	\$206,510	\$204,752	\$1,758
9	AQUEDUCT CHANNEL EAST OF EXPRY	800	1350	0.0074	6	54	5.0	4.0	7.7	4	GRASS	1.67	\$20,083	\$10,625	\$67,797	\$98,505	\$74,776	\$23,729
10	AQUEDUCT CHANNEL MIDDLE REACH	770	2300	0.0059	6	62	6.0	4.7	6.6	4	GRASS	3.27	\$39,284	\$24,278	\$132,618	\$196,180	\$149,763	\$46,416
11	AQUEDUCT CHANNEL EAST REACH	640	2400	0.0023	6	66	6.5	5.1	4.7	4	GRASS	3.64	\$43,636	\$28,889	\$147,312	\$219,837	\$168,278	\$51,559
12	STATE ST XING/CHANNEL DIVIDE	640	200	0.0020	12	20	8.0	5.8	9.1	0	1 - 8 X 12 RCB	0.09	\$1,102	\$150,000	\$3,720	\$154,822	\$153,520	\$1,302
13	COTTONWOOD LAKES CHANNEL	140	950	0.0054	6	38	3.0	2.2	4.4	4	GRASS	0.83	\$9,945	\$3,628	\$33,573	\$47,146	\$35,396	\$11,751
14	STATE ST CHANNEL NORTH REACH	540	2400	0.0016	6	62	6.0	5.1	4.0	4	GRASS	3.42	\$40,992	\$25,333	\$138,384	\$204,709	\$156,275	\$48,434
15	STATE ST CHANNEL MIDDLE REACH	380	1600	0.0056	6	50	4.5	3.4	5.8	4	GRASS	1.84	\$73,462	\$10,667	\$74,400	\$158,529	\$132,489	\$26,040
16	STATE ST CHANNEL COLLEGE REACH	260	2300	0.0017	6	50	4.5	3.7	3.7	4	GRASS	2.64	\$105,601	\$15,333	\$106,950	\$227,885	\$190,452	\$37,433
17	RECORD ROAD CHANNEL FIRST REACH	225	1700	0.0044	6	46	4.0	2.8	4.6	4	GRASS	1.80	\$21,543	\$9,444	\$72,726	\$103,713	\$78,259	\$25,454
18	RECORD RD CHANNEL CASA LOMA XING	225	450	0.0027	40	68	2.5	1.6	3.1	4	GRASS	0.70	\$8,430	\$3,021	\$28,458	\$39,909	\$29,948	\$9,960
19	POTTER CHANNEL FIRST REACH	190	750	0.0052	6	42	3.5	2.5	4.7	4	GRASS	0.72	\$8,676	\$3,403	\$29,295	\$41,375	\$31,122	\$10,253
20	POTTER CHANNEL BRANCH LINE	150	1150	0.0061	6	42	3.5	2.2	4.7	4	GRASS	1.11	\$13,306	\$5,218	\$44,919	\$63,442	\$47,721	\$15,722

21	POTTER CHANNEL BRANCH/POTTER RD	40	2250	0.0049	6	34	2.5	1.2	3.1	4	GRASS	1.76	\$21,074	\$6,250	\$71,145	\$98,469	\$73,569	\$24,901
22	POTTER CHANNEL ALONG RAMONA EXPRY	40	1600	0.0069	6	30	2.0	1.1	3.4	4	GRASS	1.10	\$44,077	\$3,259	\$44,640	\$91,976	\$76,352	\$15,624
23	RAMONA EXPRY CHANNEL ALONG EXPRY	670	2250	0.0052	6	58	5.5	4.4	6.5	4	GRASS	3.00	\$35,950	\$20,625	\$121,365	\$177,940	\$135,463	\$42,478
24	RAMONA EXPRY CHANNEL EXPRY/POTTER	500	2100	0.0057	6	54	5.0	3.8	6.2	4	GRASS	2.60	\$31,240	\$16,528	\$105,462	\$153,229	\$116,318	\$36,912
25	RAMONA EXPRY CHANNEL-POTTER/MWD X	320	100	0.0050	10	18	0.0	3.0	10.7	0	1 - 4 X 10 RCB	0.04	\$1,653	\$120,000	\$1,674	\$123,327	\$122,741	\$586
26	RAMONA EXPRY CHANNEL BRANCH W/MWD X	160	1000	0.0055	6	46	4.0	2.3	4.6	4	GRASS	1.06	\$42,241	\$15,556	\$42,780	\$100,576	\$85,603	\$14,973
27	RAMONA EXPRY CHANNEL ALONG POTTER	200	1200	0.0013	10	50	4.0	3.2	2.8	4	GRASS	1.38	\$55,096	\$7,556	\$55,800	\$118,452	\$98,922	\$19,530
28	RAMONA EXPRY CHANNEL END/MWD XING	160	1650	0.0061	6	38	3.0	2.2	4.8	4	GRASS	1.44	\$57,576	\$15,958	\$58,311	\$131,845	\$111,436	\$20,409
29	RAMONA BLVD CHANNEL	180	3400	0.0060	6	42	3.5	2.4	4.9	4	GRASS	3.28	\$39,339	\$15,426	\$132,804	\$187,569	\$141,087	\$46,481
30	FIRST REACH MAIN CHANNEL	3400	1800	0.0038	50	110	6.5	5.8	8.1	4	GRASS	4.55	\$54,545	\$45,500	\$184,140	\$284,185	\$219,736	\$64,449
31	DEANZA BRANCH OFF MAIN CHANNEL	90	1900	0.0050	6	38	3.0	1.8	3.8	4	GRASS	1.66	\$66,299	\$6,861	\$67,146	\$140,306	\$116,805	\$23,501
32	MAIN CHANNEL DEANZA TO RES BRANCH	3350	2400	0.0030	50	114	7.0	6.1	7.4	4	GRASS	6.28	\$251,240	\$66,889	\$254,448	\$572,577	\$483,520	\$89,057
33	FIRST REACH RESERVOIR BRANCH LINE	280	2800	0.0074	20	52	3.0	1.9	5.5	4	GRASS	3.34	\$133,701	\$15,556	\$135,408	\$284,664	\$237,271	\$47,393
	UPPER REACH RESERVOIR BRANCH LINE	150	2000	0.0040	20	48	2.5	1.6	3.6	4	GRASS	2.20	\$88,154	\$8,796	\$89,280	\$186,231	\$154,983	\$31,248
35	MAIN CHANNEL S/O RESERVOIR BRANCH	3250	2600	0.0035	50	114	7.0	5.7	7.8	4	GRASS	6.80	\$272,176	\$72,463	\$275,652	\$620,291	\$523,813	\$96,478
36	MAIN CHANNEL CASA LOMA XING	3100	700	0.0200	100	140	4.0	3.6	7.6	4	RIP-RAP 1/4 T	2.25	\$89,991	\$26,074	\$91,140	\$207,205	\$175,306	\$31,899
37	MAIN CHANNEL ON RESERVOIR PROPERTY	2450	2700	0.0018	200	240	4.0	2.9	4.1	4	GRASS	14.88	\$25,000	\$122,000	\$100,000	\$247,000	\$212,000	\$35,000
38	FIRST REACH SANDERSON CHANNEL	635	2400	0.0020	6	66	6.5	5.3	4.5	4	GRASS	3.64	\$145,455	\$28,889	\$147,312	\$321,655	\$270,096	\$51,559
39	MIDDLE REACH SANDERSON CHANNEL	635	1600	0.0025	6	62	6.0	5.0	4.9	4	GRASS	2.28	\$91,093	\$16,889	\$92,256	\$200,238	\$167,948	\$32,290
40	SANDERSON CHANNEL ALONG SANDERSON	500	2750	0.0022	6	58	5.5	4.7	4.4	4	GRASS	3.66	\$146,465	\$25,208	\$148,335	\$320,008	\$268,091	\$51,917
41	JEFFERY ROAD CHANNEL W/O LYON	1100	2300	0.0003	170	202	3.0	2.2	2.8	4	CONCRETE	10.67	\$426,630	\$61,653	\$432,078	\$920,361	\$769,133	\$151,227
42	JEFFERY ROAD CHANNEL E/O LYON	600	2900	0.0040	6	58	5.5	4.4	5.7	4	GRASS	3.86	\$154,454	\$26,583	\$156,426	\$337,463	\$282,714	\$54,749
43	JEFFERY ROAD CHANNEL TO DEANZA	585	400	0.0040	5	33	5.0	4.1	10.9	2	CONCRETE	0.30	\$12,121	\$75,000	\$2,400	\$89,521	\$88,681	\$840
44	LYON CHANNEL FIRST REACH	500	1400	0.0023	6	58	5.5	4.6	4.4	4	GRASS	1.86	\$74,564	\$12,833	\$75,516	\$162,913	\$136,483	\$26,431
45	LYON CHANNEL MIDDLE REACH	400	1100	0.0045	6	50	4.5	3.6	5.4	4	GRASS	1.26	\$50,505	\$7,333	\$51,150	\$108,988	\$91,086	\$17,903
46	LYON CHANNEL COTTONWOOD REACH	340	1500	0.0047	20	56	3.5	2.3	4.9	4	GRASS	1.93	\$77,135	\$10,208	\$78,120	\$165,463	\$138,121	\$27,342
	MAIN CHANNEL RES/COTTONWOOD AVE	1350	3400	0.0035	50	94	4.5	3.8	5.6	4	GRASS	7.34	\$293,480	\$53,833	\$297,228	\$644,542	\$540,512	\$104,030
48	MAIN CHANNEL COTTONWOOD/LYON	1325	1500	0.0024	30	86	6.0	4.9	5.3	4	GRASS	2.96	\$118,457	\$25,833	\$119,970	\$264,261	\$222,271	\$41,990

49	MAIN CHANNEL LYON/SEVENTH	1305	2000	0.0024	30	86	6.0	4.8	5.5	4	GRASS	3.95	\$157,943	\$34,444	\$159,960	\$352,348	\$296,362	\$55,986
50	MAIN CHANNEL SEVENTH/VALLEY TRANS'N	1270	1450	0.0012	50	102	5.5	4.6	4.0	4	GRASS	3.40	\$135,813	\$29,537	\$137,547	\$302,897	\$254,755	\$48,141
50A	MAIN CHANNEL - TRANS'N @ WL	1270	300	0.0107	75	100	3.2	2.0	7.8	2.7	GRASS	0.69	\$27,625	\$3,888	\$27,978	\$59,491	\$49,699	\$9,792
50B	MAIN CHANNEL - TRANS TO JUNCT	1270	450	0.0005	100	119	3.7	2.8	4.3	1.5	CONCRETE	1.23	\$49,178	\$7,977	\$49,806	\$106,960	\$89,528	\$17,432
51	MAIN CHANNEL VALLEY WIDE/STATE ST	1170	2100	0.0005	40	66	5.9	5.2	4.9	1.5	CONCRETE	3.17	\$0	\$24,149	\$30,000	\$54,149	\$43,649	\$10,500
52	WEST VALLEY WIDE CHANNEL	185	1400	0.0008	6	54	5.0	3.8	2.3	4	GRASS	1.74	\$69,421	\$11,019	\$70,308	\$150,748	\$126,140	\$24,608
53	NORTHSIDE CHANNEL OUTLET/SANDERSON	500	8050	0.0006	100	132	3.0	2.3	2.0	4	GRASS	24.39	\$292,727	\$134,167	\$988,218	\$1,415,112	\$1,069,236	\$345,876
53A	NORTHSIDE CHANNEL U/S SAND. X-ING	370	150	0.0012	16	24	4.5	3.6	6.3	0	2 - 4 X 8 RCB	0.08	\$992	\$150,000	\$2,000	\$152,992	\$152,292	\$700
54	NORTHSIDE CHANNEL-SANDERSON TRANS'N	370	450	0.0012	15	63	5.0	3.8	3.2	4	GRASS	0.65	\$7,810	\$150,000	\$2,000	\$159,810	\$159,110	\$700
55	NORTHSIDE CHANNEL E/O SANDERSON	196	1800	0.0040	6	42	3.5	2.7	4.3	4	GRASS	1.74	\$20,826	\$8,167	\$70,308	\$99,301	\$74,693	\$24,608
56	NORTHSIDE CHANNEL MIDDLE REACH	135	2800	0.0044	6	38	3.0	2.2	4.1	4	GRASS	2.44	\$29,311	\$10,111	\$98,952	\$138,374	\$103,741	\$34,633
57	NORTHSIDE CHANNEL UPPER REACH	65	1900	0.0026	6	38	3.0	1.8	2.8	4	GRASS	1.66	\$19,890	\$6,861	\$67,146	\$93,897	\$70,396	\$23,501
58	N/SIDE CHANNEL SANDERSON BRANCH NO	165	900	0.0010	6	50	4.5	3.4	2.5	4	GRASS	1.03	\$12,397	\$6,000	\$41,850	\$60,247	\$45,599	\$14,647
59	N/SIDE CHANNEL SANDERSON BRANCH SO	75	1500	0.0012	6	38	3.0	2.3	2.2	4	GRASS	1.31	\$15,702	\$5,417	\$53,010	\$74,129	\$55,576	\$18,554
60	N/SIDE CHANNEL SANDERSON E BRANCH	110	3100	0.0041	6	38	3.0	2.1	3.7	4	GRASS	2.70	\$32,452	\$11,194	\$109,554	\$153,200	\$114,856	\$38,344
61	OUTLET FOR SAN JACINTO AVE CHANNEL	849	80	0.0012	25	33	6.0	4.3	7.9	0	CONCRETE	0.06	\$727	\$84,000	\$0	\$84,727	\$84,727	\$0
62	SAN JACINTO AVE CHANNEL NO REACH	832	1900	0.0012	25	33	6.5	4.3	7.8	0	CONCRETE	1.44	\$17,273	\$906,000	\$2,500	\$925,773	\$924,898	\$875
63	SAN JACINTO AVE CHANNEL SO REACH	813	2000	0.0016	20	28	6.5	4.5	9.0	0	CONCRETE	1.29	\$51,423	1007000	\$2,500	\$1,060,923	\$1,060,048	\$875
64	SJ AVE CHANNEL RAMONA EXPRY XING	680	200	0.0016	20	28	6.0	4.0	8.5	0	2 - 6 X 10 RCB	0.13	\$0	\$207,000	\$2,500	\$209,500	\$208,625	\$875
65	SJ AVE CHANNEL W ALONG RAMONA EXPY	410	660	0.0020	10	18	7.0	4.8	8.6	0	CONCRETE	0.27	\$10,909	\$280,000	\$5,000	\$295,909	\$294,159	\$1,750
66	SJ AVE CHANNEL S FROM RAMONA EXPRY	410	3000	0.0032	6	50	4.5	3.9	4.8	4	GRASS	3.44	\$137,741	\$20,000	\$139,500	\$297,241	\$248,416	\$48,825
67	SJ AVE CHANNEL FROM ANGLE TO SJ AV	320	1150	0.0047	6	50	4.5	3.3	5.2	4	GRASS	1.32	\$52,801	\$7,667	\$53,475	\$113,942	\$95,226	\$18,716
68	SJ AVE CHANNEL SJ AVE/MONTROSE AVE	320	1700	0.0065	6	42	3.5	3.0	5.8	4	GRASS	1.64	\$65,565	\$7,713	\$66,402	\$139,680	\$116,439	\$23,241
69	RAMONA EXPRY E CHANNEL SJ/MONTROSE	310	2000	0.0050	6	46	4.0	3.2	5.3	4	GRASS	2.11	\$84,481	\$11,111	\$85,560	\$181,152	\$151,206	\$29,946
70	RAMONA EXPY E CHANNEL MONTROSE/ANG	260	2900	0.0034	6	50	4.5	3.2	4.4	4	GRASS	3.33	\$133,150	\$19,333	\$134,850	\$287,333	\$240,136	\$47,198
71	RAMONA EXPY E CHANNEL-CAM LOS BANO	200	3600	0.0061	6	46	4.0	2.5	5.1	4	GRASS	3.80	\$152,066	\$20,000	\$154,008	\$326,074	\$272,171	\$53,903
72	MAIN STREET OUTLET STRUCTURE	100	60	0.0100	7	15	4.0	3.0	7.0	0	2 - 4 X 7 RCB	0.02	\$826	\$120,000	\$5,000	\$125,826	\$124,076	\$1,750
73	SAN JACINTO RIVER DIKE RELOCATION	0	23000	0.0000	0	112	0.0	0.0	0.0	4	GRASS	59.14	\$709,642	\$6,325,000	\$2,395,680	\$9,430,322	\$8,591,834	\$838,488

SUBTOTALS

157680

406.67 \$7,487,345 \$16,183,852 \$15,725,447 \$39,396,643 \$33,892,737 \$5,503,906

SJPCDES.WR1

APPENDIX B

Appendix B

19-Oct-91

COST FOR ULTIMATE WATER SYSTEM NORTHWEST SAN JACINTO AREA

FACILITY NUMBER	DESCRIPTION OF FACILITY	SIZE OF FACILITY	LENGTH OF FACILITY	UNIT COST OF FACILITY	COST OF FACILITY
1	PRESSURE REGULATOR	4000 GPM	---	LUMP SUM	\$40,000
5	PRESSURE REGULATOR	3500 GPM	---	LUMP SUM	\$35,000
6	PRESSURE REGULATOR	10000 GPM*	---	LUMP SUM	\$100,000
11	SUPPLY TO PR #1	12	900	36	\$32,400
15	SUPPLY TO PR#5	12	200	36	\$7,200
16	SUPPLY TO PR#6	12	400	36	\$14,400
52	NEW WELL	2000 GPM	2000	350	\$700,000
53	NEW WELL	1500 GPM	1500	350	\$525,000
54	NEW WELL	1500 GPM	1500	350	\$525,000
57	NEW WELL	1500 GPM	1500	350	\$525,000
58	NEW WELL	1500 GPM	1500	350	\$525,000
59	NEW WELL	1000 GPM	1000	350	\$350,000
60	NEW WELL	1200 GPM	1200	350	\$420,000
61	NEW WELL	2000 GPM	2000	350	\$700,000
62	NEW WELL	500 GPM	500	400	\$200,000
63	NEW WELL	800 GPM	800	375	\$300,000
102	RECORD ROAD	21	1400	63	\$88,200
103	RECORD ROAD	21	2000	63	\$126,000
105	LYON AVE(POTTER)	12	2000	36	\$72,000
106	LYON AVE(POTTER)	16	1600	48	\$76,800
107	FUT. LYON AVE.	12	3500	36	\$126,000
108	FUT. LYON AVE.(POTTER)	12	1320	36	\$47,520
109	FUT. LYON AVE.(POTTER)	18	1400	54	\$75,600
110	DE ANZA DRIVE (REAL).	16	4300	48	\$206,400
112	UNNAMED SW TO NE ST.	12	3300	36	\$118,800

113 UNNAMED SW TO NE ST.	12	2600	36	\$93,600
114 S TO N ST, SAND. TO DEA	16	5700	48	\$321,600
115 N'LY OF 114	21	800	63	\$50,400
117 RAMONA EXPRESSWAY	12	4000	36	\$144,000
118 FUT. LYON AVE N	18	1400	54	\$75,600
119 FUT. LYON AVE N	16	1100	48	\$52,800
120 FUT. LYON AVE N	18	4500	54	\$243,000
121 SANDERSON AVE	18	3800	54	\$205,200
122 SANDERSON AVE	12	2000	36	\$72,000
123 SANDERSON AVE	12	4240	36	\$152,640
126 DE ANZA DR. (REAL.)	18	2200	54	\$118,800
127 SANDERSON AVE	12	3900	36	\$140,400
128 SANDERSON AVE	18	2900	54	\$156,600
129 SE LOOP CONN'R	16	1500	48	\$72,000
130 CENT. LOOP RD. E	12	4400	36	\$158,400
131 N. LOOP RD. CONN'R	12	2640	36	\$95,040
132 RAMONA EXPRESSWAY	12	3700	36	\$133,200
133 FUT. LYON AVE N	12	1300	36	\$46,800
134 FUT. LYON AVE N	16	2500	48	\$120,000
135 FUT. CENTRAL AVE N	18	1400	54	\$75,600
136 FUT. CENTRAL AVE N	21	2300	63	\$144,900
137 CAWSTON S OF FUT LYON	12	1300	36	\$46,800
138 CAWSTON N OF FUT LYON	18	4800	54	\$259,200
139 E CENT LOOP TO N LOOP	12	2400	36	\$86,400
140 CENT LOOP S	12	6800	36	\$244,800
141 S LOOP S	12	6000	36	\$216,000
142 CENT LOOP N	12	5000	36	\$180,000
143 N LOOP N	12	7200	36	\$259,200

144	RAMONA EXPRESSWAY	16	3200	48	\$153,600
145	WARREN, RAM TO FUT LY	18	2000	54	\$108,000
146	FUT. LYON AVE N	16	3300	48	\$158,400
147	TANK SUPPLY LINE STORAGE RESERVIOR	24 18 MG	2300 18000000	72 0.4	\$165,600 \$7,200,000
148	CENTRAL AVENUE	21	3600	63	\$226,800
149	ODELL, FUT LYON TO CEN	12	9700	36	\$349,200
150	ODELL, RAM TO FUT LYON	12	1600	36	\$57,600
153	ODELL REALIGNED, S	12	2200	36	\$79,200
154	SCOTT, WARREN TO ODEL	12	2800	36	\$100,800
157	N LOOP CONN NW	16	1300	48	\$62,400
158	RAMONA EXPRESSWAY	16	2300	48	\$110,400
159	FUT. LYON AVE NW	12	5000	36	\$180,000
160	CENTRAL AVE	16	2500	48	\$120,000
161	CENTRAL AVE	18	3600	54	\$194,400
162	BRIDGE STREET	12	7700	36	\$277,200
163	RAMONA EXPRESSWAY	12	8000	36	\$288,000
164	RAMONA EXPRESSWAY	16	4700	48	\$225,600
165	WARREN ROAD	24	2700	72	\$194,400
166	WARREN ROAD	30	4000	90	\$360,000
167	WARREN ROAD	30	2600	90	\$234,000
168	WARREN ROAD REALIGNED	30	3200	90	\$288,000
169	TANK SUPPLY LINE STORAGE RESERVOIR	30 18 MG	3400 18000000	90 0.4	\$306,000 \$7,200,000
170	LYON AVE	12	2500	36	\$90,000
171	CENTRAL AVE	21	1500	63	\$94,500
172	LYON (POTTER)@ DEANZA	18	100	54	\$5,400
173	WARD ST	16	4200	48	\$201,600
174	BRIDGE ST	12	7000	36	\$252,000

SUBTOTAL FACILITIES COST *	\$29,184,400
CONTINGENCIES @ 20%	\$5,836,880
TOTAL CONSTRUCTION COST	\$35,021,280
INFLANTION @ 5%PER YEAR-15 YR BUILDOUT	\$37,785,446
BOND SALE AND REPORT COSTS @ 15%	\$5,253,192
TOTAL REQUIRED BOND APPROVAL	\$78,059,918

*ADDITIONAL OFFSITE FACILITIES MAY BE REQUIRED
SJWTR

APPENDIX C

Appendix C

NORTHWEST IMPROVEMENT PROJECT SEWER DESIGN AND COST

PIPE SEGMENT LENGTH	THROUGH FLOWS EDU'S	INTRODUCE FLOWS	TOTAL SEGMENT FLOWS	AVERAGE DAILY FLOWS	DESIGN FLOWS MGD	DESIGN FLOWS CFS	PIPE SIZE IN	K VALUE	DEPTH RATIO	CONSTANT C _a	CROSS SECTION AREA	MINIMUM SLOPE CALCULATE	VELOCITY OF FLOW	DESIGN SLOPE	CONSTANT C _r	HYDRAULIC RADIUS FT	DESIGN VELOCITY FPS	FLOW DEPTH IN	LINE DEPTH FT	CONSTRUCTION & ENGR COST \$/FT	SEGMENT COST \$	COST % ENWD PASSTHROUGH	ENWD TRANSMISSION COST	LOCAL SHARE COST
800	10000	0	10000	2.20	3.90	6.03	18	0.91	0.75	0.632	1.422	0.00396	4.24	0.0067	0.302	0.4530	5.53	12.23	19	\$60.00	\$48,000	100.00	\$48,000	\$0
1650	10000	0	10000	2.20	3.90	6.03	18	0.91	0.75	0.632	1.422	0.00396	4.24	0.0041	0.302	0.4530	4.33	13.41	20	\$61.50	\$101,475	100.00	\$101,475	\$0
450	10000	0	10000	2.20	3.90	6.03	18	0.91	0.75	0.632	1.422	0.00396	4.24	0.0041	0.302	0.4530	4.33	13.41	19	\$60.00	\$27,000	100.00	\$27,000	\$0
1150	10000	0	10000	2.20	3.90	6.03	18	0.91	0.75	0.632	1.422	0.00396	4.24	0.0041	0.302	0.4530	4.33	13.41	18	\$58.50	\$67,275	100.00	\$67,275	\$0
1600	10000	0	10000	2.20	3.90	6.03	18	0.91	0.75	0.632	1.422	0.00396	4.24	0.0116	0.302	0.4530	7.28	11.04	23	\$66.00	\$105,600	100.00	\$105,600	\$0
3350	1321.2	0	1321.2	0.29	0.64	1.00	12	1.47	0.5	0.393	0.393	0.00313	2.53	0.0032	0.25	0.2500	2.57	5.97	21	\$45.00	\$150,750	0.00	\$0	\$150,750
800	1321.2	1545.6	2866.8	0.63	1.28	1.98	15	0.91	0.75	0.632	0.9875	0.00113	2.01	0.0047	0.302	0.3775	4.10	8.62	24	\$58.50	\$46,800	0.00	\$0	\$46,800
1350	2866.8	0	2866.8	0.63	1.28	1.98	15	0.91	0.75	0.632	0.9875	0.00113	2.01	0.0015	0.302	0.3775	2.32	10.67	24	\$58.50	\$78,975	0.00	\$0	\$78,975
1350	2866.8	908.8	3775.6	0.83	1.64	2.53	15	0.91	0.75	0.632	0.9875	0.00185	2.57	0.0018	0.302	0.3775	2.54	11.31	25	\$60.00	\$81,000	0.00	\$0	\$81,000
900	1391.2	0	1391.2	0.31	0.67	1.04	10	1.47	0.5	0.393	0.272916	0.00906	3.82	0.0122	0.25	0.2083	4.45	4.73	13	\$27.00	\$24,300	0.00	\$0	\$24,300
950	1391.2	0	1391.2	0.31	0.67	1.04	10	1.47	0.5	0.393	0.272916	0.00906	3.82	0.0189	0.25	0.2083	5.54	4.36	21	\$39.00	\$37,050	0.00	\$0	\$37,050
200	1391.2	3775.6	5166.8	1.14	2.17	3.35	15	0.91	0.75	0.632	0.9875	0.00323	3.39	0.0035	0.302	0.3775	3.54	11.08	27	\$63.00	\$12,600	0.00	\$0	\$12,600
1600	5166.8	10000	15166.8	3.34	5.65	8.74	21	0.91	0.75	0.632	1.9355	0.00365	4.51	0.0036	0.302	0.5285	4.50	15.79	26	\$79.50	\$127,200	65.93	\$83,867	\$43,333
150	15166.8	0	15166.8	3.34	5.65	8.74	21	0.91	0.75	0.632	1.9355	0.00365	4.51	0.0038	0.302	0.5285	4.62	15.63	24	\$226.50	\$33,975	65.93	\$22,401	\$11,574
1350	15166.8	0	15166.8	3.34	5.65	8.74	21	0.91	0.75	0.632	1.9355	0.00365	4.51	0.004	0.302	0.5285	4.74	15.48	25	\$78.00	\$105,300	65.93	\$69,428	\$35,872
2800	742.4	0	742.4	0.16	0.39	0.60	10	1.47	0.5	0.393	0.272916	0.00296	2.18	0.004	0.25	0.2083	2.55	4.73	10	\$22.50	\$63,000	0.00	\$0	\$63,000
1900	742.4	969.2	1711.6	0.38	0.81	1.25	10	1.47	0.5	0.393	0.272916	0.01310	4.59	0.0131	0.25	0.2083	4.61	5.00	16	\$31.50	\$59,850	0.00	\$0	\$59,850
150	1711.6	0	1711.6	0.38	0.81	1.25	10	1.47	0.5	0.393	0.272916	0.01310	4.59	0.0131	0.25	0.2083	4.61	5.00	25	\$195.00	\$29,250	0.00	\$0	\$29,250
1250	1711.6	15166.8	16878.4	3.71	6.21	9.61	21	0.91	0.75	0.632	1.9355	0.00442	4.97	0.0044	0.302	0.5285	4.97	15.76	27	\$81.00	\$101,250	59.25	\$59,988	\$41,262
600	16878.4	0	16878.4	3.71	6.21	9.61	21	0.91	0.75	0.632	1.9355	0.00442	4.97	0.005	0.302	0.5285	5.30	15.39	26	\$79.50	\$47,700	59.25	\$28,261	\$19,439
1300	1003.2	0	1003.2	0.22	0.50	0.78	8	1.47	0.5	0.393	0.174666	0.01664	4.46	0.0243	0.25	0.1667	5.41	3.73	22	\$34.50	\$44,850	0.00	\$0	\$44,850
1800	1003.2	0	1003.2	0.22	0.50	0.78	10	1.47	0.5	0.393	0.272916	0.00506	2.86	0.0053	0.25	0.2083	2.93	4.96	33	\$57.00	\$102,600	0.00	\$0	\$102,600
2800	1003.2	1037.6	2040.8	0.45	0.95	1.47	15	0.91	0.75	0.632	0.9875	0.00062	1.48	0.0016	0.302	0.3775	2.39	9.41	30	\$67.50	\$189,000	0.00	\$0	\$189,000
3150	2040.8	1580	3620.8	0.80	1.58	2.44	15	0.91	0.75	0.632	0.9875	0.00172	2.47	0.0017	0.302	0.3775	2.47	11.27	25	\$60.00	\$189,000	0.00	\$0	\$189,000
900	3620.8	0	3620.8	0.80	1.58	2.44	15	0.91	0.75	0.632	0.9875	0.00172	2.47	0.0017	0.302	0.3775	2.47	11.27	23	\$57.00	\$51,300	0.00	\$0	\$51,300
600	3620.8	0	3620.8	0.80	1.58	2.44	15	0.91	0.75	0.632	0.9875	0.00172	2.47	0.002	0.302	0.3775	2.68	10.93	25	\$60.00	\$36,000	0.00	\$0	\$36,000
2800	3620.8	16878.4	20499.2	4.51	7.38	11.42	24	0.91	0.75	0.632	2.528	0.00306	4.52	0.0032	0.302	0.6040	4.63	17.85	24	\$85.50	\$239,400	48.78	\$116,785	\$122,615
2100	2001.2	0	2001.2	0.44	0.93	1.44	12	1.47	0.5	0.393	0.393	0.00654	3.67	0.0068	0.25	0.2500	3.75	5.96	11	\$30.00	\$63,000	0.00	\$0	\$63,000
4150	2001.2	1117.6	3118.8	0.69	1.38	2.14	15	0.91	0.75	0.632	0.9875	0.00132	2.17	0.0017	0.302	0.3775	2.47	10.72	14	\$43.50	\$180,525	0.00	\$0	\$180,525
350	3118.8	0	3118.8	0.69	1.38	2.14	15	0.91	0.75	0.632	0.9875	0.00132	2.17	0.0017	0.302	0.3775	2.47	10.72	14	\$43.50	\$15,225	0.00	\$0	\$15,225
1850	3118.8	0	3118.8	0.69	1.38	2.14	15	0.91	0.75	0.632	0.9875	0.00132	2.17	0.0073	0.302	0.3775	5.12	8.16	20	\$52.50	\$97,125	0.00	\$0	\$97,125
	23618	0	23618	5.20	8.38	12.96													32		\$1,000,000	42.34	\$423,406	\$576,594
10700	23618	0	23618	5.20	8.38	12.96	21		1					0.0071			9.6211		4	\$63.00	\$674,100	42.34	\$285,418	\$388,682
56850																					\$4,230,475		\$1,438,904	\$2,791,571



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